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M. HARIKRISHNAN, I. F. S.
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Joint Editor :

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Assistant Instructor

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D. L. BHALANI

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Alumini of the College who get enrolled as Associate members are also eligible for the award of the above prizes as per rules.

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ANNUAL JOURNAL OF FORESTRY, SHIKAR AND TRAVEL

The Magazine now forms a section of the Southern Forest Rangers College Association. The Editorial Board has been reconstituted and the Management Rules revised in terms of the rules of the Association.

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Appeal......

The next issue of the Southern Forest Rangers College Magazine (1976 issue) is due for Publication in October 1976. Forest officers (both retired and serving) and the present students of the College are cordially invited to coutribute articles in English on any interesting topic under Fotestry, Wild Life, Shikar, reminicences, adventures, anecdotes, personal observations or experiences in the profession having a bearing on forestry. Preference will be given to articles contributed by professional foresters who form the alumni of the college. Articles should preferably be typed with double spacing on one side of a foolscap paper leaving a margin of 1½" and should be accompanied by summaries. If there is sufficient number of qnalified articles contributed eitherby the students of the College or Associate members forming alumui of the College, prizes will be awarded for the best article. Cartoons, drawings and caricatures are also welcomed for publication. These will have to be drawn on thick drawing paper with no pinholes or scratches or rubbings.

As in this issue it is proposed to devote a few pages for publishing the professional and presonal achievements of associate members who form a part, of the Alumni of this College. Interesting developments about the associate members may please be communicated to the Editor well in time for publication in these columns.

Contributions for the 1976 issue of the Magazine should be sent to the Editor, Southern Forest Rangers College Magazine, Coimbatore - 2, so as to reach him before 15th August 1976. The Editorial Board will further appreciate it if more contributions are received from the alumni of the College and if this appeal is given wide publicity.

—HONORARY EDITOR.

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I. A. M. Mahmood Husain, hereby declare that the Particulars given above are true to the best of my knowledge and belief.

(Sd.) A. M. MAHMOOD HUSAIN,
PRINCIPAL,
Southern Forest Rangers College,
COIMBATORE.

THE SOUTHERN FOREST RANGERS COLLEGE MAGAZINE

Vol. 51 ANNUAL 1975

Editorial

The enthusiastic response to our request for contributions to this year's issue has been most heartening. It is indeed creditable of the students to have found both the time and the inclination to write for their annual in the midst of their varied activities and taut schedule. As usual the articles cover quite a wide range, with the emphasis on different aspects of forestry and allied subjects.

ABOUT OURSELVES

1974—'76 Course :—

117 students comprise the 1974—'76 course that commenced on 1—11—74. The countrywise and statewise break-up is as follows :

S. No.	Country or state		Number
1.	Andhra Pradesh	...	25
2.	Goa	...	5
3.	Gujarat	...	14
4.	Karnataka	...	14
5.	Kerala	...	11
6.	Maharashtra	...	23
7.	Tamil Nadu	...	20

Staff :

Shri P. N. Doraiswamy, our A. L. E. S. for the past several years, left the college on 15-1-75 following his appointment to the I. R. E. S. We wish him all the best and know that he will always remember his days here with pleasure. Shri Saravanan is now the A. L. E. S., having taken charge on 26-6-75. We welcome him.

— EDITOR.

Twenty Sixth Convocation of the Southern Forest Rangers College - 1974

The Convocation of southern Forest Rangers College for the year 1973-74 was held at Coimbatore on 30th October 1974 Dhen Shri Prabhudass Patel, Deputy Minister for Agriculture, Govt. of India, delivered the Convocation Address. Welcoming the Chief Guest, **Shri S. K. Seth, I. F. S.**, President, Forest Research Institute & Colleges, Dehra Dun spoke as follows:—

Hon'ble Minister, Ladies and Gentlemen,

It gives me a great pleasure to welcome you all for lending support to our programme of Forest Education in the country by gracing this occasion by you presence. Your presence on this occasion which otherwise is principally an aca demic function, adds a social dimension to it and gives us the encouragement and feeling of being a necessary limb of the society, fulfilling an important role.

The Convocation is a very important annual function of this College not only for those who pass out from this College today after two years of forestry training but also for other trainees as well teachers of this College. This gives them all a social and professional recognition and the necessary encouragement to man the Forest Service with confidence and courage and with the assured support of the society.

To you Sir, who has kindly consented to be with us today and to preside over these proceedings, we assure you that we will leave no stone unturned to keep up the high traditions of our profession and to play our due role in the development of the nation's economy. Your presence here, Sir, gives us all the inspiration to work with added vigour and fulfil the trust reposed in us. We are extremely happy and grateful to have you amongst us on this occasion.

Forestry training in our country both at the professional and technical levels is the responsibility of the Government of India. This College which was started by the then Madras Government back in the year 1912, was taken over by the Government of India on 1st July 1948 and forms a wing of the Forest Research Institute & College, Dehra Dun. It caters to the needs of the southern States in particular and is one of the oldest institutions in forestry training. The system of education and the curriculum are revised and re-oriented from time to time to meet the changing needs of the country and to make the training job-oriented. A high sense of devotion to duty and "espirit de corps" are aimed at, befitting the traditions of the service particularly at the level of the forest rangers.

Forests play an important role in Nation's economy. The multi-dimensional impact of the forests and its products in the ever developing economy of a country need not be over emphasised. In addition to the important forest products which they supply, forests play an even greater role in maintaining the balance of the eco-system as a whole, including the flora, fauna, and their interaction with the climate and geomorphology of the region. In the recent meeting of the Central Board of Forestry, these aims have been high-lighted afresh and a proper orientation of the National Forest Policy has been strongly recommended to keep pace with the challenges of a viable society, of which a dynamically adjusting eco-system is the sustaining basis.

A great involvement of the people in the development and protection of the vast forest lands of the country has been sought after. Protection of the vast catchment areas of river valley projects, afforestation, welfare of the tribal communities residing in the forest areas, coordination between agriculture and forestry and putting an end to deforestation are some of the urgent needs of the day.

All this has put an added responsibility on the forester of today who has to face this great task of reorienting the future management and utilization trends and to meet the challenges that lie ahead. Forestry today is much different from

what it was a decade or two ago but with dynamism in our outlock and with dedication to our duties, we are certain that we will be able to meet the challenge.

For you, the young foresters who are passing out today, I have a few words of guidance. Your main task will be to develop and manage the country's forest resources so as to fulfil the National objectives, through the application of technical knowledge and professional skills of the highest order. Such is the task before you young men who are on the threshold of joining the profession today. You are rightly considered the back-bone of the service. You have to work as scientists, administrators, policemen, lawyers and publicity men. You will always have to be in intimate contact with the people and carry the people with you in whatever you do and gain their good will and cooperation.

Remember, that any forestry programme, however, well planned it may be, will not be success without the cooperation of the people. One chapter of your life in the formal education here ended today but it opens up the doors to another vast field which requires constant learning. It is a never ending process in your life and you will have to keep your minds open all the time to learn and profit from experience.

I congratulate you all on your successful completion of your training and thus embarking on a noble career. I have every hope that you will live fully up-to our expectations and serve the country well.

I wish you all a very successful and happy life and a very rewarding career.

I now request the Director of Forest Education to present his report.

There after, **Shri D. C. Pande, I. F. S.,** Director of Forest Education, F. R. I. & Colleges, Dehra Dun, presented the annual report on the working of southern Forest Rangers College, Coimbatore for the year 1973-74 as follows:-

Respected Sir, Ladies and Gentlemen,

Today is the XXVI Convocation of the Southern Forest Rangers College. From a small beginning in 1912, when the then Provincial Government of Madras established this College to train their own Forest Rangers and housed it in the

old Municipal Hospital buildings and Y. M. C. A. hostels, it has gradually grown in stature to shoulder greater responsibilities. Upto 1939, 640 Rangers from the various, the then Provinces and States of India as well as Ceylon were trained in this College. Due to world-wide economic depression the College had to be closed down in 1939. The closure however, was not to last long and it was re-opened in 1945.

After Independence and in pursuance of their policy of having a uniform standard of training for the sub-professional and professional cadres and to organise and coordinate Forest Research in India, the Government of India took over the College on 1st July 1948. Though the initial taking over was on the basis of a lease of 4 years only, it was later decided to keep it permanently under the control of the Central Government as a branch of the Forest Research Institute and Colleges, Dehra Dun. In view of its zonal function, its name was changed to the Southern Forest Rangers College on 1st April 1955.

Today, the Southern Forest Rangers College has attained a regional status not only in the national context but in a truely international sense and has secured a place for itself in the world map of forest education and training. So far, this College has trained 124 Forest Rangers from foreign countries including three passing out today.

Students under Training :

During the year under report 175 trainees were on rolls of the College, 87 in 1972-74 Rangers Course who are passing out on 30-10-1974 and 88 in 1973-75 Rangers Course. The passing out batch includes three foreign scholars under Colombo Plan and SCAAP viz., Shri M. M. Ameen, Shri K. G. Pemasinghe from Sri-Lanka and Shri J. V. Gbondo from Seirra Leone. The total number of trainees that have passed out from this College from 1912 to 1974, (with a break of six years from 1939 to 1945, when the College was temporarily closed) is 2724 including those passiong out today.

In juniors (1973-75 Rangers Course), there are in all 88 trainees including foreign scholars. Of them, 4 are from Sri-Lanka, 2 from Laos and 1 from Afghanistan.

The new batch which starts from 1-11-1974 will consist of 123 trainees from the following States/countries :—

1.	Andhra Pradesh	...	25
2.	Gujarat	...	14
3.	Goa, Daman & Diu	...	5
4.	Karnataka	...	21
5.	Kerala	...	11
6.	Maharashtra	...	25
7.	Tamil Nadu	...	19
8.	Afghanistan	...	2
9.	Fiji	...	1
	Total	...	123

For the first time in the history of forest education and training in India, a lady student is reporting from Fiji at this College for the two years' course.

Courses of studies and field tours

The training course is for a period of two years leading to the award of the certificate and comprises lectures and practical work at head-quarters in forestry and allied subjects combined with tours in the selected forest areas to study different types of forests and their management. Emphasis on practical education is maintained. The present trainees were taken out on study tour covering 13 weeks in the first year and 10 weeks in the second year, in the States of Uttar Pradesh, Madhya Pradesh, Maharashtra, Andhra Pradesh, Karnataka Kerala, Tamil Nadu and the Union Territory of Goa. These tours gave opportunities to the students to study the various types of forests, methods of management adopted under differentconditions and various other practical aspects of forests and forestry. In addition, all working Saturdays at Head-quarters are devoted to field excursions. Visits to various forest industries, some Wild Life Sanctuaries and Forest Research Institute & Colleges, Dehra Dun were also arranged during the tours including a three weeks course in field Engineering and Weapon Training with the Madras Engineer Group and Centre at Bangalore.

A new cross country competition within the forests called the " Orienteering Exercise " patterned on the Swedish foresters' practice preceded the survey practical camp of the junior class at Topslip in September 1974. The competition was a big success and it gave the students valuable practice in finding their own way with only a map to guide them through unfamiliar forests teeming with Wild Life.

Other Lectures etc.

A course of 8 lectures on First Aid to the injured was held for senior trainees by Dr. R. Swamidoss, Medical Officer, Government Dispensary, Lawley Road, Coimbatore and the examination on the subject was held by Dr. K Ananda Rao, Hony. Treasurer, St. John Ambulance Association, Coimbatore as nominated by St. John Ambulace Association. A course of lectures on Public Relations was also arranged for the seniors.

Extra curricular activities

To ensure a comprehensive development of personality, besides the regular courses of study, the individuality of the trainees was allowed to have its full play through co-curricular activities. The Students from different states and foreign countries were formed into small groups to ensure better understanding among them on a social as well as personal level.

In order that students develop a healthy approach towards their profession in particular and society in general they are engaged in extra curricular activities under the auspices of Southern Forest Rangers College Association. This Associaaion has six sections—(1) Sports (2) Literary & Science (3) Common Room (4) Magazine (5) Wild Life and (6) Camera Club—each under the charge of an officer. The Association is managed by the students under the guidance of the College authorities. The College publishes a magazine issued annually since 1953 onwards, the editorial board of which consists of the elected representatives from among the students and staff. Articles connected with forestry, travel, shikar and other subjects by the students, staff, forest officers and others are published in it. In addition, 'Alumni Corner' is being published for the last two years to recollect past students of this College, to record the past events and the present achievements of the Alumni.

Common Mess

A common mess is run for the students both at head-quarters and on tours. This is managed by the students themselves under the supervision of the Principal and one of the members of the staff.

Staff

The strength of the instructional staff of the College consists of Principal, 4 Instructors, 5 Assistant Instructors and one Assistant Lecturer in Engineering and Surveying and P. T. and Games Instructors.

The post of Principal has been re-designated as Principal and Head of Biological Research, Southern Forest Rangers College and Forest Research Centre from July 1963.

During the year under report the following were the changes among the instructional staff.

(i) Shri P. Padmanabhan, Instructor reverted back to Tamil Nadu on 2. 3. 7. 4.

(ii) Shri S. Subbarayalu Naidu, District Forest Officer, Ootacamund North Division, Ootacamund joined as Instructor at this College on 25. 2. 74.

Research staff continued to lecture on their subjects to the students.

General

The training in the College embraces not only the theory and practice of forestry but also tries to equip the students mentally and physically for a strenuous forest life and for execution of various miscellaneous duties that await them and their profession. There are few comparable posts in public service which call for such qualities of energy, tact, endeavour and physical fitness combined in the professional skill of varied character in the same high degree as that of a forest officer. Emphasis is laid on the maintenance of a high standard of discipline during the entire period of training.

ACKNOWLEDGEMENTS

It is both a pleasant duty and a privilege for me as Director of Forest Education to thank all the officers who have made this course a success. We are greatly indebted to all the:

(i) Chief Conservator of Forests, Conservator of Forests and Divisional Forest Officers and their staff in all the areas of the forests visited by us in the States for their help and cooperation in making our tours instructive and pleasant. To arrange for a camb consisting of large number of students, officers and their supporting staff is no easy matter and we are deeply appreciative of all the courtesies and facilities extended to us.

(ii) The Commandant, Madras Engineer Group and Centre, Bangalore was kind enough to conduct the course in Field Engineering and Weapen Training for the senior students. Our thanks are due to them all for conducting these two very practical and useful exercises.

(iii) Our thanks are also due to the Chief, Logging Training Centre, Coimbatore who delivered the lectures and held demonstration on logging.

(iv) Our thanks are due to the Superintendent, Coimbatore Medical College Hospital and Medical Officer, Dispensary of the Tamil Nadu Agricultural University, Coimbatore who rendered medical aid to the students when needed,

(v) I would also thank the vorious administration of the railways and road transport used by us for their help in providing special facilities for our journeys.

(vi) I am also very grateful to Shri K. L. Lahiri, Inspector General of Forests and Shri S. K. Seth, President, Forest Research Institute and Colleges, Dehra Dun for their constant guidance for making the training programme in the

Colleges more meaningful and fruitful and also for their active interest in the same.

Lastly I am also very thankful to shri A. M. Mahmood Husain, Principal and Head, Biological Research and officers of the College and Research Centre for all they have done to maintain a high standard of forest education.

I will now call upon Shri A. M. Mahamood Husain, Principal, Southern Forest Rangers College and Head, Biological Research to present the reeults of the outgoing trainees.

Shri A. M. Mahmood Husain, Principal Southern Forest Rangers College, Coimbatore announced the final results as under:-

Respected Sir, Ladies and Gentlemen,

I am glad to announce that out of the 87 students who appeared for the final examinations, 81 including 3 scholars under Colombo Plan from Sri Lanka and under SCAAP from Sierra Leone have qualified for Higher Standard Certificates. Four students have qualified for Lower Standard Certificates. Two are issued provisional Lower Standard Certificates and will take a supplementary examination in one subject later.

I shall now call up the names of the students in the order of merit, and they will please come forward to receive the certificates from the Hon. Minister. I now request you, Sir, to kindly award the certificates and prizes.

FINAL RESULTS OF THE 1972—'74 RANGERS COURSE

IN ORDER OF MERIT :

HONOURS : Nil

HIGHER STANDARD :

S. No.	Name of Student	State
1.	K. S. Ananda	Karnataka
2.	I. P. Kalappa	Karnataka
3.	M. K. Bidi	Goa
4.	Rohidas N. Naik	Goa
5.	V. I. Joy	Tamil Nadu
6.	K. Diwakar Bhat	Goa
7.	N. K. Gupta	Madhya Pradesh
8.	N. Velayuthan	Kerala
9.	R. Vincent	Tamil Nadu
10.	J. R. Shivhare	Madhya Pradesh
11.	M. Durairaj	Andamans
12.	H. Umer Khan	Karnataka
13.	K. Udaya Kumar	Karnataka
14.	K. Radhakrishnan Nair	Kerala
15.	K. N. Lakshminarayana	Karnataka
16.	R. M. Mandlik	Maharashtra
17.	K. A. Prabhakara	Karnataka
18.	C. Balachandran Nair	Kerala
19.	R. S. Arora	Madhya Pradesh
20.	N. Sudhir	Kerala
21.	G. K. Muthusamy	Tamil Nadu
22.	Anutosh Guha	Andamans
23	K. M. Shigihalli	Karnataka
24.	N. K. S. Mahimkar	Maharashtra
25.	N. M. Joshi	Gujarat
26.	A. Ratnakar Shetty	Karnataka
27.	M. K. Tanpure	Maharashtra
28.	S. Karthikeyan Pilla	Kerala

S. No.	Name of Student	State
29.	K. S. C. Gowda	Karnataka
30.	B. K. Kurtkoti	Maharashtra
31.	H. K. Dave	Madhya Pradesh
32.	T. S. Rabari	Gujarat
33.	K. S. Seshadri	Karnataka
34.	S. Abdul Kareem	Karnataka
35.	Kuldip Singh	Madhya Pradesh
36.	V. M. Muthuswamy	Tamil Nadu
37.	K. L. Palewar	Madhya Pradesh
38.	P. Krishnan	Tamil Nadu
39.	V. M. Bhosale	Maharashtra
40.	R. M. Tongo	Maharashtra
41.	M. L. Budhwani	Gujarat
42.	V. N. Deshpande	Maharashtra
43.	Vasanthakumar	Karnataka
44.	S. Xalxo	Madhya Pradesh
45.	P. W. Deshpande	Maharashtra
46.	Putte Gowda	Karnataka
47.	C. B. Bhatt	Gujarat
48.	T. K. Dahbara	Madhya Pradesh
49.	Shailendra Kumar	Madhya Pradesh
50.	S. K. Selot	Madhya Pradesh
51.	K. Manickam	Tamil Nadu
52.	K. V. Ravikumar	Kerala
53.	S. K. Roy	Madhya Pradesh
54.	J. C. Malviya	Madhya Pradesh
55.	M. Hassan	Kerala
56.	Rashid Khan	MadhyaPradesh
57.	K. N. Rangaraje Urs.	Karnataka
58.	Syed Saghir Ahmed	Karnataka
59.	M. Dorairaj	Tamil Nadu
60.	K. S. Bapat	Karnataka
61.	P. S. Mani	Kerala

S. No.	Name of Student	State
62.	J. R. Patel	Gujarat
63.	A. K. Parashar	Madhya Pradesh
64.	G. P. Dubey	Madhya Pradesh
65.	K. K. Gangadhara	Karnataka
66.	A. K. Jugade	Maharashtra
67.	B. P. S. Matta	Madhya Pradesh
68.	P. Hazarath Peeran	Tamil Nadu
69.	A. S. Rathore	Madhya Pradesh
70.	R. B. Singh	Madhya Pradesh
71:	A. Somasundaran	Kerala
72.	S. P. Kulkarni	Maharashtra
73.	V. Thankappan	Kerala
74.	Bhajaiah	Karnataka
75.	M. K. Mukherjee	Madhya Pradesh
76.	M. Munichamy	Tamil Nadu
77.	B. D. Pathak	Madhya Pradesh
78.	M. D. Mishra	Madhya Pradesh
	Lower Standard	
79.	A. K. Mishra	Madhya Pradesh
80.	N. Shivananjappa	Karnataka
81.	V. F. Ladwa	Gujarat
82.	R. Chinnaswamy	Karnataka
	Lower Standard (Provisional)	
83.	K. M. Kunhikannan	Kerala
84.	A. L. Shukla	Madhya Pradesh
	Students from Foreign Countries Deputed under Colombo Plan and Scaap	
	Higher Standard:	
	In order of Merit:	
1.	K. G. Pemasinghe	Sri Lanka
2.	M. M. Ameen	Sri Lanka
8.	J. V. Gbondo	Sierra Leone

PRIZES AWARDED TO 1972—'74 RANGERS COURSE

Sl. No.	Name of Prize	Name of Winner	State
1	**Honours Gold Medal**	Nil	Nil
2	**Master's Rolling Cup** (For the topmost student who does not get Honours Gold Medal)	K. S. Ananda	Karnataka
3	**The Campbell Walker Prize** (For Forestry)	K. S. Ananda	Karnataka
4	**The Brazier Prize** (For the best Outdoor Ranger.)	Rohidas N. Naik	Goa

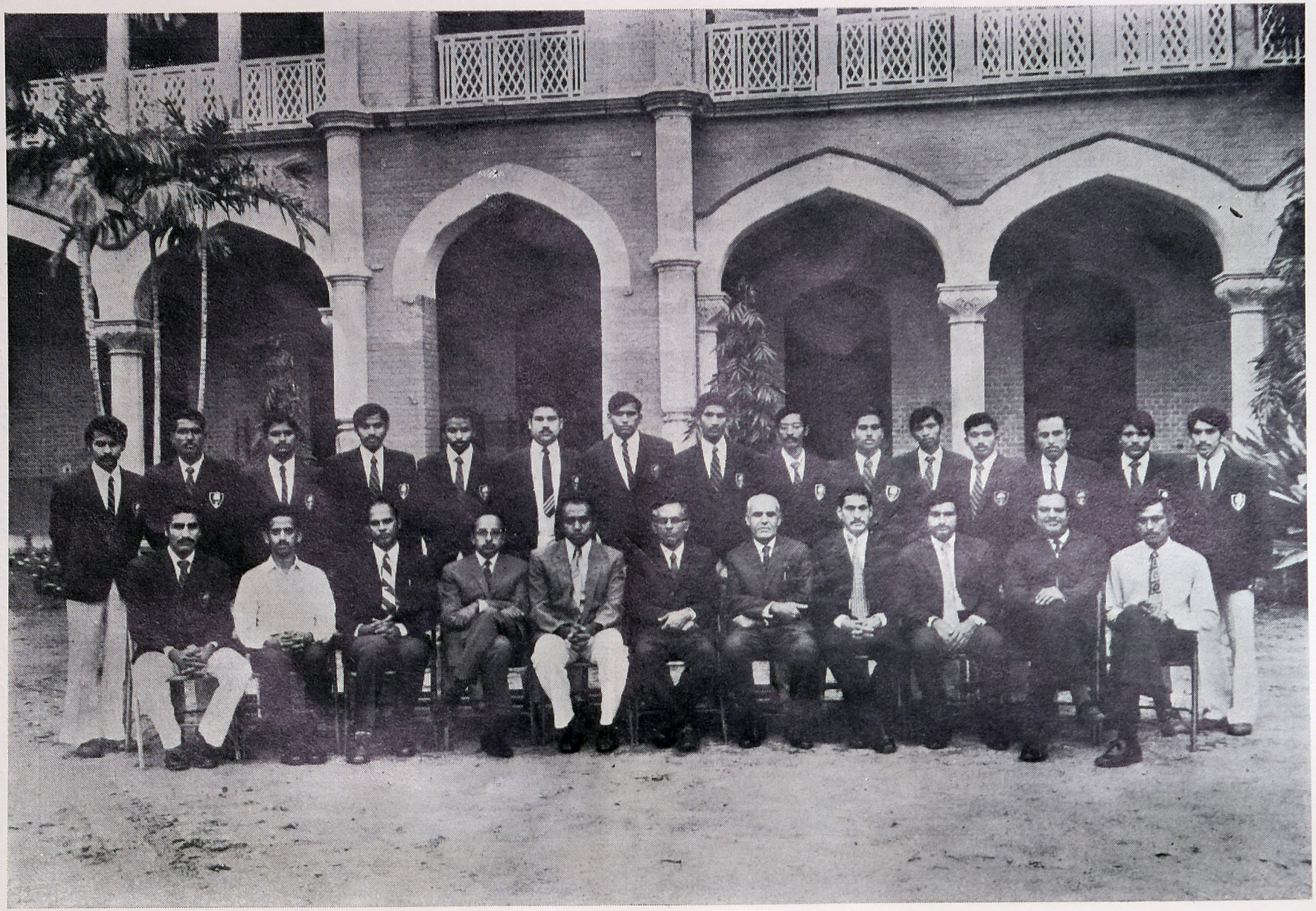
Sl. No.	Name of Prize	Name of Winner	State
5	**The Lodge Prize** (For Forest Engineering.)	I. P. Kalappa	Karnataka
6	**College Silver Medal** (For Forest Botany)	I. P. Kalappa	Karnataka
7	**College Silver Medal** (For Forest utilization)	R. S Arora H. K. Dave	Madhya Pradesh Madhya Pradesh
8	**College Silver Medal** (For Range administration)	I. P. Kalappa	Karnataka
9	**The Stracey Prize** (For Wild life Management)	N. Velayuthan	Kerala
10	**Nilgiri Wild Life Association Prize**	*I Prize* K. G. Pemasinghe *II Prize* Rohidas N. Naik	 Sri Lanka Goa
11	**The Indian Forester Prize** (Topmost student who does not get any other prize)	Mahmood Shah Bidi	Goa
12	**Hajee Mohamad Khan's Rolling cup** (For the best student from Tamil Nadu or Karnataka State.	K. S. Ananda	Karnataka
13	**The Pentland Shield** (For the best All-Round Sports-man)	M. M. Ameen	Sri Lanka
14	**The Mannarghat Moopil Nair Cup** (For Marathon Race)	P. S. Mani	Kerala
15	**Amir Mohamed Khan Rolling cup** (for the best Division in Marathon Race)	Junior Ranger 'C' Dn. (1973-75 Rangers Course-Winners) M. N. Patel	
16	**The Parvathy Kurup's Rolling shield** (For the Healthiest student during the year)*	Rashid Khan	Madhya Pradesh
17	**Mohamad Hussain Rolling Shield** (For orienteering)	K. V. Kunhabdulla	Kerala
18	**Fischer cup for Tennis**	K B. Thampi	Kerala

*Awarded to the student who has the best attendance in physical training, lectures and games and who has secured the highest marks in games and sports, power of endurance and health on tours and in Marathon Race.

CONVOCATION DAY

Shri S. K. Seth, I. F. S, President, Forest Research Institute & Colleges, Dehra Dun Welcoming the Chief Guest.

Shri Prabhu Das Patel, Dy. Minister, Ministry of Agriculture and Irrigation Govt. of India, awarding Master's Rolling Cup to Shri K. S. Ananda.



S. F. R. C. TEAM CAPTAINS — 1975

By Shri PRABHU DAS PATEL, Deputy Minister, Ministry of Agriculture & Irrigation (Department of Agriculture) Govt. of India delivered this following

CONVOCATION ADDRESS.

Dear Friends,

I am happy to be in your midst today to address a group of young and enthusiastic men trained to be dedicated foresters. You must be proud of this institution which enjoys the distinction of having trained over 2500 Range Forest Officers. Some of the alumni of this institution have earned for themselves enviable reputation in the practice of forestry and have contributed substantially towards the development of forestry. I am confident that those of you who are passing out today by dint of hard and sincere work will bring laurels to your institution.

Forestry as a career demands selfless and dedicated service with a sense of high professional integrity. It is a demanding as well as a creative and rewarding profession with plenty of opportunities for those who take up the challenge.

The relationship between man and forest has never been static. Primitive man depended on the forests directly and intimately. The forests were his habitat in which he found his food and shelter. His attitude changed with times as society developed. As forests obstructed the growth of agriculture and urbanization they were looked down upon as impediments to progress and they were cleared over large tracts. Consequently economic development came to be associated with the destruction of forests. Probably clearing of forests to the extent required was a necessary desideratum for this development. But most civilized societies carried the destruction too far. India, despite her heritage of love for nature was no exception. Due to the pressure of population the forests started dwindling. Forests disappeared fast even from places where they should never have been interfered with resulting in the obvious loss of good soil, and drying out of the water resources. As a result of the rapid denudation of the forests the adverse effects began to be felt and this forced the administration to take steps to conserve the forests. The work of the pioneer foresters was very difficult. In spite of the hostile conditions those days they did a remarkable job. Their devotion to work and drive have been a source of unfailing inspiration to the succeeding foresters.

Our country is now passing through difficult times. We must put our heart and soul into the work we are engaged in to overcome the difficulties facing us. The forestry sector must rise to the occasion and contribute substantially to achieve our goal of self-sufficiency. In a developing economy the demands cannot be met only by the indirect benefits from the forests. In order to derive the maximum benefit from the forests for the economic development of our country physical protection alone is not sufficient. Time has come for a dynamic outlook on forestry. As this juncture the forester assures new responsibilities as an active agent of change.

It is a fact that still there are forest areas which are not being fully tapped. Though we must strive to increase the area under forests we should not forget to fully utilize the area now under forests to the maximum benefit of mankind. It is your duty as dedicated foresters to see that every hectare of forest land yields the maximum benefit to society; to achieve this, may be, some facets of the traditional outlook on forestry have to be changed. I am glad that already this has been realised to a certain extent and now plantation crops like Rubber, Tea, Coffee, etc. are being grown in suitable areas. Further new and intensive methods can be developed even to raise the traditional species such as Teak, Sal, etc. so that they can yield more. Wherever proved effective, mechanisation should be resorted to, to increase the yield without, however, jeopardising the employment opportunities especially of tribal forest dwellers.

A thorough knowledge of the character and potentialities of our forests and a skilful management involving a commensurate investment is very essential. The gap between demand and supply will widen in the years to come unless traditional approaches based merely on conservation are replaced by dynamic multiple benefit oriented approach.

Rigid adherence to the age old policy of conservation and raising plantations in pockets here and there in a few hectares will not meet the demands of the day. Conservation of the ecosystem based on sound management practices and optimum development of forest areas should be the policy of the modern foresters. A socially balanced multipurpose approach to the forest and its resources is the urgent need of the day. In this country, forestry enjoys a unique advantage over agriculture from the point of view

of facilities for implementation of any plan for progress. Forests are by and large Government owned, making it possible to implement new schemes, comparatively easily and effectively. Hence, with the land at your disposal and with energetic men like you, it must be possible to make every hectare an asset.

In our country it is not uncommon to come across vast stretches of forest lands in marginal or degraded areas supporting poor vegetation. These areas are crying for development. Such areas must be put to use by adopting modern methods. Here forestry research must come to the rescue of the foresters in the field. Suitable species should be selected for such areas and methods evolved to raise them successfully.

Production oriented forestry is mostly based on wood and wood being bulky, proper transport facilities are required. Locating wood bassed industries close to the forests will help reduce the transport. With the shortage of steel, consumption of wood will be steadily increasing. Steel being a scarce commodity, even bamboo is being sought after for constrution purposes, and as a component of bamboo concrete. Bamboo is the poor man's timber. It is also being primarily used for paper manufacture. Just as we are facing shortage of steel, we are facing shortage of paper also. Hence, bamboo has become a raw material in great demand. The bamboo available from natural forests alone is not sufficient to meet the growing demand for paper manufacture. Hence, bamboo plantations activities have to be rapidly extended.

In the present day world, forests cannot be just looked upon as reservoirs of timber and pulp wood. They also provide the vital cover for the watershed areas for maintaining a steady flow of pure water in our rivers. Every one in our country to a smaller or greater degree would have experienced some problem caused by too much water when we did not want it, or too little water when we did not want it. Our farmers have experienced dry spells as well as floods. Floods have caused considerable damage, misery and hardship to many. Hence, we must learn more about the control of floods at their source We must learn to use watermore efficiently in industry, in towns, and in irrigation. We have to intensify the study or the forests in the hills that make up our watersheds. We must manage them properly on sound scientific principles for the abundance and

purity of water. Soil, water, land and people are interlocked in an intimate chain, and the adequate management of the primary resources of soil and water is closely linked with the stability and evolution of the society.

For meeting these new challenges, more personnel will be required and steps are already under way to recruit more people for imparting forestry training. Further, the national forest policy enunciated in 1952 is being revised. The draft policy seeks to reflect the changes that have taken place in the past 22 years and it also seeks to ensure that forests are able to fulfil national objectives and aspirations.

Forests near a city are a source of recreation for the urban population. Such forests will not only be acting as...recreational centres but also aspump houses of pure air for the oxygen starved city. Such recreational centres near a city will also educate the young who are going to be the future custodians of the forests. We should not be driven to such a state of affairs where we may have to travel long distances to show the youngsters what a forest looks like. Hence, whatever forests we are fortunately left with near the cities must be preserved at all costs.

For Wild Life to survive, we have to preserve and properly manage the forests. Wild Life is now being given the proper attention it needs. Protection and preservation of wild life goes hand in hand with the protection and management of forest. Wild Life and forests cannot be separated and it has to be managed as a single entity by the forester.

The life of a Forest Ranger is difficult and hard. But I am sure the two years you have spent in this College would have adequately equipped you to face difficult times. You will shortly join the forest service of your respective states or countries. Maintenance of scientific approach in the performance of your duties should be paramount in your mind. To get job satisfaction, you must work with missionary seal and be devoted to the caurse of forestry. I congratulate you all for successfully completing the course. I especially congratulate the young men from the adjoining countries. I am sure they will be carrying with them happy memories of their stay in this college and in our country. I wish you all a very fruitful and gainful career ahead.

Shri H. M. GIDWANI, I. F. S. Instructor, Southern Forest Rangers College, Coimbatore, proposed the vote of thanks as under:-

Honourable Minister, Ladies and Gentlemen,

It is my pleasant duty to thank you all for gracing this occasion today by your presence.

It is rather difficult to thank individually every one who has taken pains to make this function a success but it is my duty to express my gratitude for those who has taken special pains to come and be with us today.

We are indeed most indebted to the Honourable Minister for having consented to be with us on this occasion inspite of the pressing demands on his time and to give us the benefit ot his advice and vast experience. The interest which you, sir, are showing in the forestry matters as evident from your illuminating and thought provoking address has given us inspiration and confidence and I can assure you, sir, we will strive our best to come upto your expectations. Your presence here today, sir, is a signal honour not only to this institution but also to the forestry profession as a whole.

I thank all the Distinguished Guests, who are with us today, for having spared their valuable time to grace the occasion.

To you Ladies and Gentlemen, who have respondend to our invitation and added colour to this otherwise academic function, I am especially indebted for having spared your precious time to be with us and contribute to the success of this function.

I will be failing in my duty if I were not to mention the help rendered by the Principal, officers, staff and the junior students and all others connected in organising this function and making it a success. On behalf of the college and on my own I thank them all for the cooperation extended at all the times.

Ladies and Gentlemen, it is customary on such occasions for the person who proposes a vote of thanks to say a few words to the outgoing trainees.

My dear young friends, I congratulate you all for your success in the training after 2 years of hard and arduous work. Though we will be missing you after two years of intimate contact, I am sure that your departments are anxiously awaiting your arrival and your need is greater there. You have just now heard the inspiring addresses by the Honourable Minister, the President, Forest Research Institute and the Director of Forest Education. I have great confidence that you will prove worthy of our expectation in you as foresters. We will be glad to hear from you about your achievements and will always be ready to help you at any moment.

The great community of Foresters which has a proud and enviable tradition of dedication, hard work and sincerity gladly welcomes you to its fold.

Thank you all once again.

Improve Your Knowledge

G. BALAKRISHNAN
Junior Stenographer.

What Do We Call These ?

(a) A collection of sheep - Flock.

(b) A collection of ships - Fleet.

(c) A collection of sharks - Shoal.

(d) A collection of people in a Theatre - Audience.

(e) A collection of rare and curious things kept for show - Museum.

(f) A collection of bees - Swarm.

(g) A collection of horses reared for racing - Stud.

(h) A collection of young ones hatched at one sitting - Brood.

Better.

(a) Better an empty house than an ill tenant.

(b) Better be envied than pitied.

(c) Better lose a jest than friend.

(d) Better fill a man's belly than his eyes.

(e) Better the head of a dog than the tail of a lion.

(f) Better be alone in bed than in bad company.

(g) Better a small fish than an empty dish.

(h) Better an open enemy than a false friend.

Geographical Epithets and what they signify.

(a) City of Magnificent Distances - Madras.

(b) Forbidden land - Tibet.

(c) Gate way of India - Bombay.

(d) Gift of the Nile - Egypt.

(e) The land of Five Rivers - The Punjab.

(f) River in the Sea - Gulf Stream.

(g) Root of the world - The Pamirs.

(h) Sorrow of Bengal - The Damodar.

(i) Yellow River - The River Hwang Ho.

(j) Play Ground of Europe - Switzerland.

Diseases of Eucalypts In South India

H. S. SEHGAL,
J. MADHAVAN NAIR &
S. STANLEY JAGADEES,
Forest Research Centre,
Coimbatore.

The Eucalyptus, a group of ever green trees and shrubs is one of the most important genera in plantation forestry because of its rapid growth rate and regenerative powers and its timber which can be used for various purposes. Within the last two decades large scale planting of this genus has been undertaken throughout the south Indian forest areas. In South India the eucalypts are exposed to two severe fungal diseases, the Pink disease and a Foliar disease.

Pink disease is caused by the pathogen, *Corticium salmonicolor*. This disease is causing widespread damage in *Encalyptus grandis*, *E. hybrid* and *E. citriodora* plantations of Karnataka and Kerala States The affected plantations are located at varying altitudes from sea level to 2000 m and get rainfall between 950 mm. to 7500. mm. per annum. Mortality is very high where temperature and humidity are high. The Industrial Plantation Divisions, Vazhachal, Perumuzhi and Kalady in Kerala State are among the worst affected

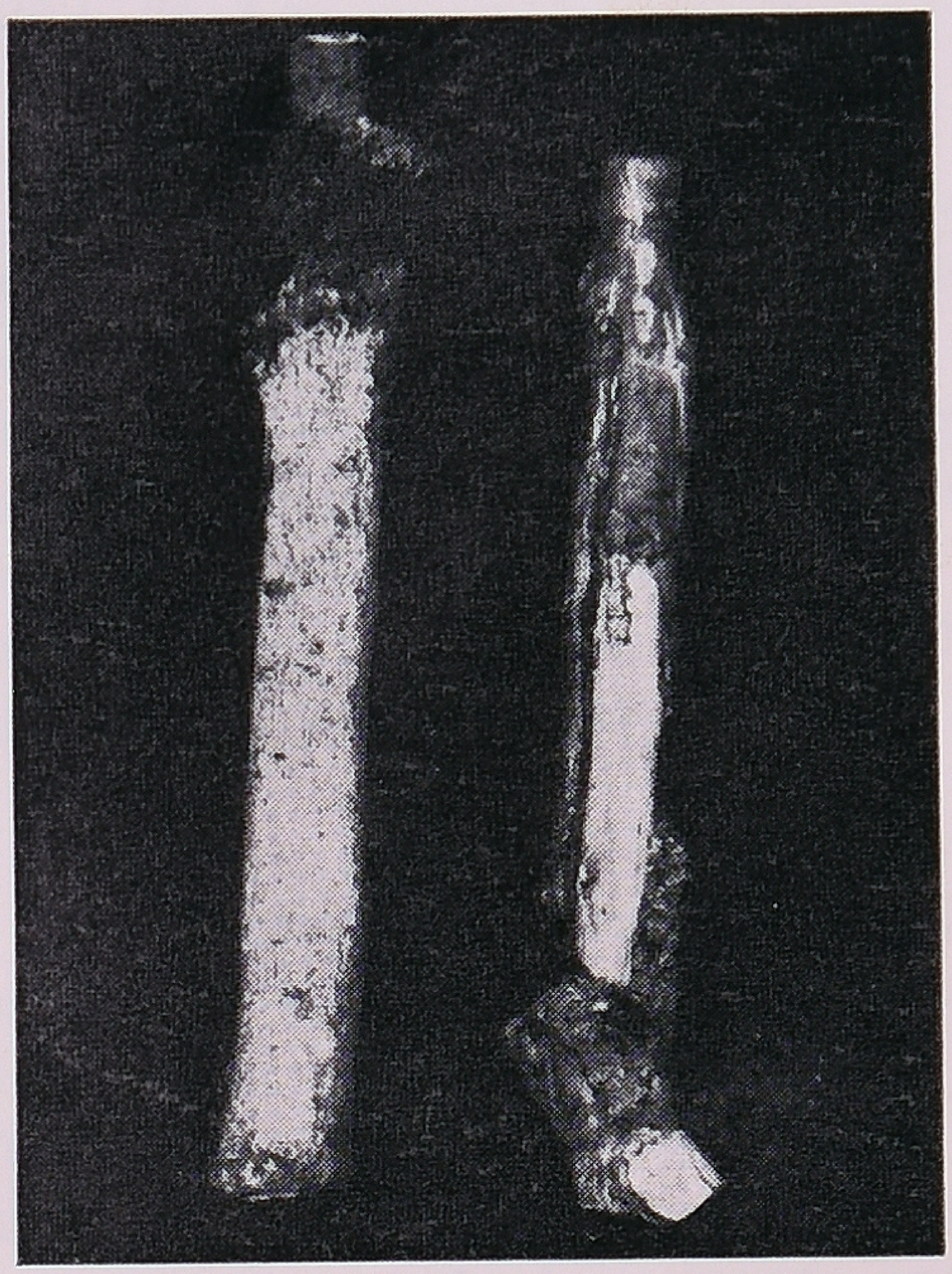
areas. The altitude of these localities varies from 400 m. to 450 m. and the rain fall is around 3400 mm. per annum. Other Eucalyptus species affected by this pathogen in South India are *E. alba*, *E. camaldulensis*, *E. deglupta*, *E. paniculata*, *E. robusta*, *E. saligna*, *E. tereticornis*, *E. tessellaris*, *E. torelliana* and *E. trabotii*. These species are only in trial stage. Out of these *E. deglupta* and *E. torelliana* have been found less susceptible upto their second year of growth and further observations have to be made on them.

Corticium salmonicolor Berk. & Br. synonym: *Pellicularia salmonicolor* (Berk. & Br.) Dastur (family Thelephoraceae; order Polyporales; class Basidiomycetes) has been recorded on many species and genera of plants which are widely separated. Rent mantions that it has been found on no less than 141 species of plants belonging to 104 genera and many different families (Sharples, 1936). Eucalyptus trees of all ages which have developed some woody parts are attacked by this fungus. Normally the disease symptoms appear during the second year after planting. Branch infection is more common in the initial stage of attack. Girdling of the stem or canker formation occurs at the infected region (Plate I fig. 1). The part above the girdled region dries up. Usually the infected Plants of *E. grandis* and *E. citriodora* are killed outright. In *E. hvbrid* epicormic shootsare produced below the infected region on the main stem and one of these shoots develops into the new leader after the death of the main stem. This too gets infected and killed back subsequently but may again produce epicormic branches before it dies. This process may be repeated a few times and ultimately the complete death of the plant may occur. Rarely epicormic shoots are produced in *E. grandis* and in *E. citriodora* and very rarely one of them develops into a leader.

The fungus has four different forms of growth on the host. These are pustule, cobweb, necator and perfect forms, In an affected plant the fungus may produce one or more than one of these forms. On eucalypts during the rainy season the pustule, cobweb and perfect forms are commonly seen together (Plate 1, fig. 4).

1. **Pustule form**: Pustules are pale pink to white; irregular to roundish; minute, upto 1 mm. in diameter and are formed by sterile mycelium. These are arranged in lines along the small cracks formed in the bark.

PLATE_1



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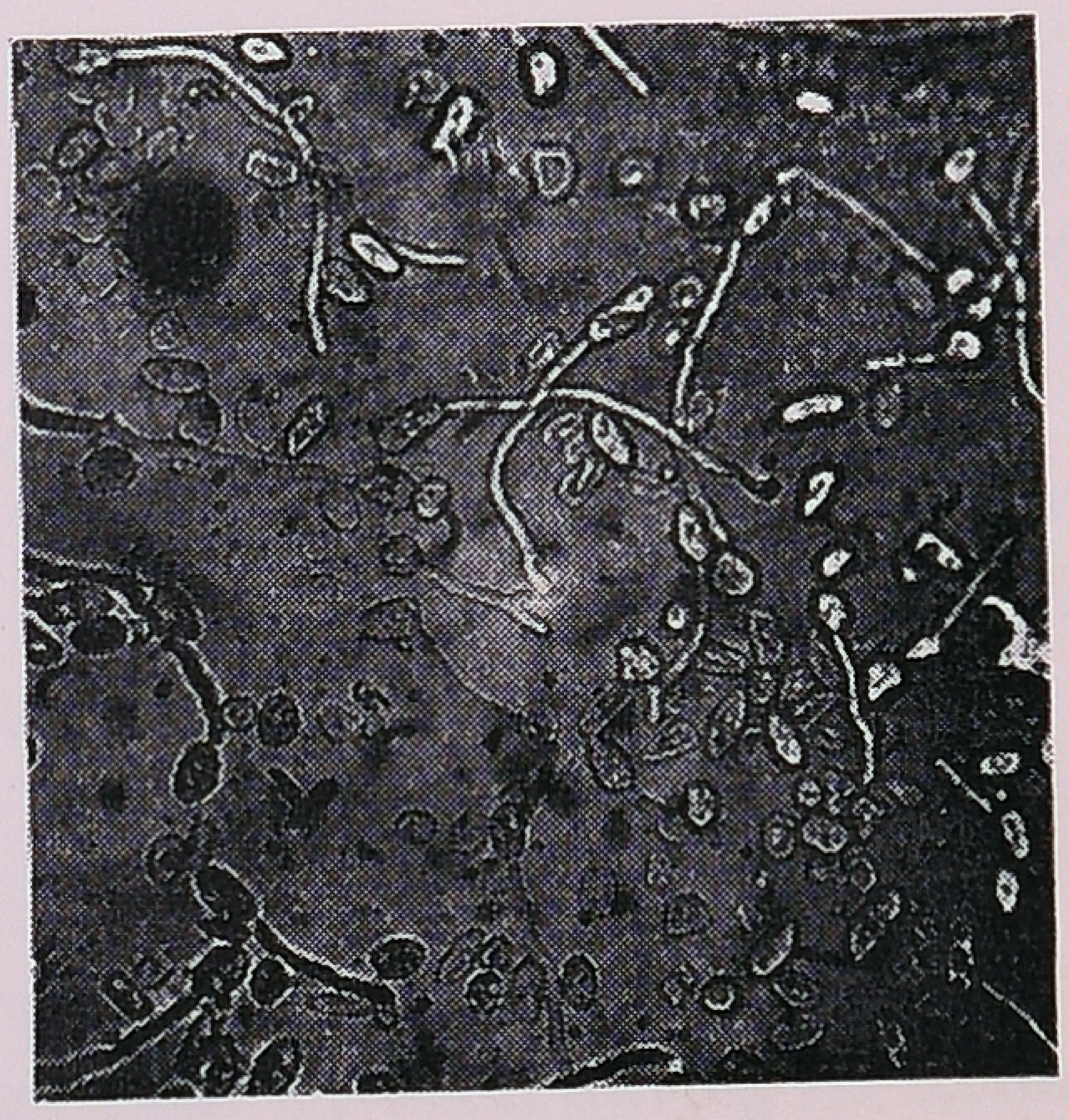

5

1. PERFECT FORM OF CORTICIUM SALMONICOLOR ON EUCALYPTUS HYBRID
2. CANKER ON EUCALYPTUS HYBRID
3. PERFECT FORM AND CANKER ON EUCALYPTUS GRANDIS
4. PUSTULE FORM, COBWEB FORM AND PERFECT FORM ON EUCALYPTUS GRANDIS
5. GERMINATION OF CONIDIOSPORES.

2. **Cobweb form**: It is the fine silky growth of mycelium originating from the pustules and spreading over the infected and adjacent parts of the bark. (plate I, fig. 4).

3. **Nccator form**: In this form the pathogen produces abundant asexual spores - conidia. The condia appear to be splash liberated and are most important, in spreading the disease. The neator pustule which are orange red arise from the internal mycelium. Each pustule consists of a stromatic mass of pseudoparenchymatous cells. After its emergence through the bark the outer layer continuously develops into spores. The spores are individually hyaline, orange in mass, roundish to variously shaped and variable in size - 10 - 32/u x 8 - 15/u. In water the spores germinate readily. (Plate No 1 fig. 5).

4. **Perfect form**: The fungus produces its basidiocarp in this form. The disease got its name from the colour of the fruit body which is light pink. The basidiocarp is resupinate and adherent (Plate I fig. 1, 3 and 4). Hymenial surface is smooth (irregular cracks appear on the surface in old fruit bodies), salmon buff with white margin. Basidia are densely packed, subclavate to clavate, broad, with 2 - 4 sterigmata and 17 - 35/u x 9 - 12/u in size. Basidiospores are hyaline, smooth, thin walled, ellipsoid to obovate - 7 - 12/u x 8 - 10/u. Paraphyses are arranged in a palisade manner.

In culture the fungus produced only the thin, silky mycelium consisting of simple septate hyphae. No spore was formed.

Wet humid and warm climate and lack of proper aerial circulation due to the presence of weeds or tall and closely planted taungya crops are the most favourable conditions for the rapid spread of this disease. An earlier attack by the fungus *Cylindrocladium quinquiseptatum*, which causes severe defoliation and infection of tender branches of the eucalypts, appear to be an important predisposing factor for a severe attack of pink disease. In an *E. hybrid* plantation in Vazhachal Division during its second year of growth, it was observed that initial infection of *Cortictum salmonicolor*, in majority of the cases had taken place on the branches which were earlier attacked by *Cylindrocladium quinquiseptatum*. In culture also the two fungi do not exhibit any antagonism.

In Vazhachal and Kalady Divisions where this disease occurs on an epidemic scale, studies are being conducted to control it by chemical treatment of the susceptible species or to find out suitable alternate species which are resistant to this disease.

The pathogen *Cylindrocladium quinquiseptatum* Figueiredo and Namekata, causes the second severe disease of eucalypts. As mentioned earlier it affects the foliage and tender twigs. The disease causes heavy mortality of the seedlings in the nurseries and outplantings and severe defoliation of trees. This disease also spreads rapidly in wet humid conditions, particularly when the moisture accumulates around the plants due to lack of aerial circulation. In some very wet localities some trees are completely defoliated every year during the rainy season and this may lead to their death. This phenomenon has been observed in 1967 Pachakanam plantation, Pamba division, Kerala State.

C. quinquiseptatum has been recorded as a parasite of *Eucalyptus grandis* and *E. hybrid* and described by the authors (Sehgal et al., 1969). Other Eucalyptus species affected by this pathogen are *E. alba*, *E. camaldulensis*, *E. citriodora*, *E. deglupta*, *E.* *paniculata*, *E. quadrangulata*, *E. robusta*, *E. saligna*, *E. tereticornis* and *E. torelliana*. Out of these species *E. alba* *E. paniculata*, *E. robusta* and *E. saligna* are highly susceptible. In the nurseries this disease can be controlled by the proper use of fungicides. Organic fungicides like Captan and Thiram have been found effective.

Macaranga peltata and *Bischofia javanica* were also infected by this pathogen when planted with eucalypts in the field. *Acacia auriculiformis* is also a host of this fungus.

Some other minor diseases affecting Eucalypts are -

(1) Powdery mildew : In the campus of Southern Forest Rangers College and Research Centre, Coimbatore, *Eucalyptus hybrid* seedlings were seen infected by an *Oidium* species. First white powdery patches appear on the leaves. Later distortion and necrosis take place which ultimately lead to leaf cast. This disease can be successfully controlled by spraying with a sulphur fungicide.

(2) Leaf spot : In Geddesal, Erode Division, Tamilnadu, *Eucalyptus grandis* seedlings were affected by a leaf spot disease caused by *Pestalotia* species. This was a very mild attack.

(3) Heart rot : In Pamba Division, Kerala State, stray cases of white heart rot of stem of *Eucalyptus grandis* was noticed. This disease is under investigation.

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A Note on Museum Education & The Role of the Gass Forest Museum In Museum Education

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A museum is a storehouse of knowledge and can be employed as a means for imparting knowledge. Education through museums is a good means of awakening the general intelligence of the people and especially of the student community. As books and schools are neccssary for literary education, so are museums necessary for practical education. Education by means of museums is a quick, efficient and interesting method of imparting knowledge. It can stimulate and cultivate powers of observation, discrimination, judgement, and expression in students. Education without museums is not only defective but incomplete.

It is gratifying to note that museum education is being increasingly appreciated in our country nowadays Many universities, colleges and schools have established educational museums as adjuncts to their institutions. In advanced countries millions of people receive education through museums.

An educational museum can be either a university, callege or school museum, forest or agricultural museum, medical or health museum, engineering museum, science museum, natural history museum, industrial museum, art

museum, or a children's museum. In order to fulfil its functions perfectly well as an institution of visual education a museum first collects, preserves and displays objects. The objects collected and displayed should represent the particular subject the museum deals with and they should be suitable and adequate for the needs of both the students and the public. It is not enough if a museum merely collects and displays exhibits. All exhibits should be identified, classified, labelled in English and the local vernacular and displayed in their proper places if they are to serve as useful aids to education. The exhibits may be represented in the form of originals, models, pictures or photographs.

An educational museum is not a mere storehouse of collections but is an organized medium of transmitting knowledge. In order to achieve its goal of diffusion of knowledge, a museum should be constantly engaged in active educational work. The educational services a museum can render to the people are numerous. The best educational service a museum can provide is to cater to the educational needs of the visitors. Visitors to a museum represent all grades of intelligence. They include scholars, students, children and the general public including literates and illiterates. A museum should cater to the educational needs of all these categories of visitors. Scholars and students are interested in studying collections and disseminating their observations through publications. They are not much concerned about the beauty of the showcases or the captivating arrangement of the exhibits. Their sole aim is to study the collections and broaden and spread their knowledge and it is easy to satisfy this need. The collections of a museum should be made available for their study and research work. Facilities should also be offered for library reference and for holding discussions. The second category of visitors is the general public including literates and illiterates and a museum finds it difficult to satisfy their edcational needs. The general public is not interested in studying the collections nor in taking note of the details pertaining to various subjects dealt with by a museum. For them a visit to a museum means entertainment and diversion from their daily routine. They seek beauty and recreation. Attractiveness in the arrangement of the exhibits is the best means of creating and arousing interest among such visitors. Colourful dioramas, semidioramas, paintings, pictures, models, etc. will help to stimulate and broaden the minds of this group. Another method to educate them is to explain and interpret the exhibits in the most interesting manner. The third category is the group of children visiting the museum. Their educational needs can be met by establishing children's corners.

The children's corner should exhibit objects for educating the children by the play-way method, by exhibiting objects that they see and use in their daily life. Learning by doing being the modern method of teaching, the children should be allowed to handle and study the exhibits. This will help them to increase their general knowledge and intelligence. Their power of observation and discrimination will also increase and it will enable them to judge things and express their ideas freely. A children's corner in short provides the young generation education and recreation.

In addition to these activities, a museum should provide a regular education service to other educational institutions. Community lectures may be arranged for visiting student groups followed by a tour of the whole museum. Guidance to teachers on subjects covered by the museum, loaning materials for exhibitions, School loan service, distribution of pamphlets, help in identifying specimens, reference library open to students, mobile museums, etc. are some of the regular educational services a museum can render to educational institutions and the public Lantern slides, movie projectors, films, taperecorders, etc. can also be used as aids for this work. In organizing a regular education service a museum should have adequate funds, space, staff, equipment, materlals, cooperation between the museum and the local educational institutions and the society and other necessary facilities.

An educational museum which stands established for the community fails to fulfil its purpose if it is not visited and used by the community. In our country where the percentage of illiteracy is high and where the people are not museum - minded it is highly essential for the museums to keep the public well inforemed of their activities, to make the people feel the necessity to visit the museum and to help them to appreciate educational activities organised by museums. Thus to attract visitors and to achieve the goal of diffusing knowledge, it is very essential for an educational museum to resort to wide publicity. A museum should reach the public instead of the public going to it of its own accord. There are diverse media for publicity. One of the most forceful media by which the best results can be achieved is by distributing pamphlets and books containing the history of the museum, its principal features and activities, to the public. Pictorial slides based on the attractive exhibits of the museum can be prepared and shown at local cinema theatres. Attractively prepared posters can

be displayed at important places such as railway stations, airports, busstands, markets, hotels, postoffices, clubs, etc. Another well khown method of publicity is by means of filmshows. Picturepostcards can be distributed to the visitors so that they may take them home and show them to their relatives and friends· A museum can also arrange special exhibitions and mobile museums from time to time so that people from far and near have a chance to get familiar with the museum. Radio and tourist bureaus are very helpful in giving wide publicity. Aother way of reaching the public is through advertisement in dallies and weeklies. Such advertisements should include a list of new additions, visits by distinguished personalities and photographs of important exhibits in the museum.

In modern times museums play an important role in education, in wiping off the ignorance of the people and in widening and awakening their intelligence. Museums help the public to know the world and to make them useful to the society.

The Gass Forest Museum which is an adjunct to the Southern Forest Rangers College, is a specialised educational museum on forestry, and was established with the object of representing the various asp cts of forestry through a comprehensive collection to benefit the students especially students of forestry as well as the public.

In many parts of our country forests are being indiscriminately cleared and destroyed by man at a devastating rate without knowing the evil effects that may set in as a result of it. Forests play a vital role in producting the oxygen we need to breathe, conserve the soil, regulate the water supply, protect the soil from erosion, preserve wild life, yield timber and a variety of minor forest products, provide fodder and grazing facilities for cattle, protect agriculture and are among the most important contributors to the survival of all life on earth It is therefore of paramount importance to make the people realise the value of forests and the need for conservation of this great wealth of nature that is so very essential for our existence and that of our country. The Gass Forest Museum plays an important role in educating people about forests and the need for utilizing their resources in a planned and scientific manner. The museum also aims at making the people forest - conscious and appreciate the role played by forests in the economy of our nation.

The exhibits cover important Indian timbers, minor forost products, forest utilization, botanical collections, silviculture, wildlife, entomology, geology, mycology, ethnology and a small collection for the children's corner. All the exhibits are identified, classified, labelled in English and wherever possible in Tamil and displayed.

The display of several species of wood, various articles made of wood and the various products obtained from wood keeps the visitors well informed of the importance of wood which is the most valuable forest resource. It also emphasize the need for planned re-afforestation to ensure continued supplies for the future. The various minor forest products exhibited help to bring to the notice of the visitors the infinite range of India's forest products other than timber, which play an important role in the economy of our country. It also brings to light the necessity for the conservation of natural resources. The wildlife exhibits attract visitors and help to stimulate in them an interest in wild life, thereby indirectly assisting in its preservation. The role of wildlife in the advancement of sciences, in maintaining the balance of the nature and in earning foreign exchange is so very important. Botanical collections, models and charts depicting silvicultural practices, photographs and translides of forest scenes are all very interesting and educative. The importance of the display of the ethnological collections need hardly be mentioned. Tribals who constitute about 6% or 38 million of our population, are the lifeline of our forests. Their dress and ornaments, weapons and implements, snares and traps, and various articles made by them are all of particular interest to the visitors. They are also impressed by the great variety of butterflies and other insects, fungi, geological collections, etc, exhibited. At a glance the visitors can get a good idea of the role played by forests for the benefit of humanity and of the need for its conservation.

For the benefit of children visiting the museum a " children's corner" is opened, This section displays a few toys, musical instruments, air, land and water vehicles, common flowers and vegetables, common implements and tools, bird's nests, nursery rhymes, costumes of India, etc. In addition some of Aesop's fables are displayed with suitable stuffed specimens. This section, besides providing education, is an added source of interest to the children.

All the exhibits in this museum are interesting, educative and suitable for the needs of students and the public. A large number of students, besides those of the forest college, make the maximum use of the museum. For the general public this museum is a place of recreation and education.

In the arrangement of the exhibits care is taken to make the display attractive. Colourful dioramas and semidioramas are constructed to attract even the most casual of visitors. The showcases are illuminated. Labels are prepared in English and wherever possible in Tamil. The exhibits are explained and interpreted to the visitors. A "brief guide" to the museum is prepared and distributed to the visitors free of cost. Pamphlets on the "history of the Museum" and on the "value of the forests and the need for their conservation" also are distributed to the visitors.

The museum is open to public on all working days. The average number of visitors per month is 4,000, Entrance is free.

This museum is of great benefit to the student community and the public. This is the only effective means of giving wide publicity to the forests, its resources and the benefits it accrues to mankind. This is the best medium of dispensing knowledge pertaining to forests to one and all, for it is on public enlightenment that the future of the forests depends.

Morning Melody

S. P. RAMANAND
1973 - '75 Course

The morning melody of koel and squirrel,
Mingled with the chimes of the alarm bell
Sweeps away my dreamy carpet
As I peep out thro ' the mosquitonet.

As the fragrance of *Millingtonia* fades,
the domain of Night Slowly elopes -
twinkling stars fade slowly away
And I wake up to enjoy the day.

The rustling leaves of *Prosopis* and sandal trees,
in harmony with the chill and romantic breeze
compel birds to sing and donkeys to yell
Hares scamper, pigeons flutter and mynas shrill

With the rising horizon of crimson in the sky,
Colours of balleting butterflies rise high.
Admirers and lovers of Nature come here
to revive their souls with pure and fresh air.

My heart longs to float in the air of bliss,
To flutter like the doves and fly like the birds I wish -
I could get lost in the wild beauty
Alas! it is time for P. T.

What These Words Mean?

D. G. JOSHI
(1973 - 75) Course

1. **SAVE**

S - Save
O - Our
I - Indian
L - Land

2. **EROSION**

E - Eradicate
R - Rape
O - Of
S - Soil
I - In
O - Our
N - Native lands.

3. **FOREST**

F - Follow
O - Organized
R - Reforestation on
E - Eroded
S - Soils
T - To control erosion.

4. **FAMILY PLANNING**

F - Follow
A - Approved
M - Methods
I - In
L - Living
Y - Youth

By

PLANNING

Today's Afghanistan

G. BALAKRISHNAN,
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Southern Forest Rangers College
Coimbatore

(This essay has been prepared by me in consultation with Mr. S. E. Abedy, a scholar from Afghanistan, under F. A. O., in the 1973-75 Rangers Course, Southern Forest Rangers College, Coimbatore).

Let us take a brief look at Afghanistan which is famous for its various natural and historical aspects.

In the world map Afghanistan lies in Central Asia, between 60 ° 30′ and 75 ° 50′ E. longitude and 29 ° 30′ and 38 ° 30′ N. latitude. It is a member of the U. N. O. The area of Afghanistan is 8,00,000 Sq. km. Most of the area enjoys a temperate climate and some of it a sub-tropical climate. Afghanistan has got four distinct seasons i. e spring, summer, autumn and winter. The Kabul area gets rains for 3 months from the middle of March to the middle of June. The temperature at this season is between 10 ° and 25 ° C. From the middle of June to the middle of August it is summer with the temperature in between 15 ° C. and 32 ° C. The diurnal variation is considerable. Autumn begins from the middle of August and lasts till the middle of November. The temperature falls to between 10 ° and 20 ° C. Then Winter starts along with snowfall and lasts for three months. The temperature during this period is between - 15 ° C. and 12 ° C.

Afghanistan got its independence on 27th May, 1918 under the leadership of King Amanullah Khan. The National flag consists of black, red and green colours with the emblem of an eagle. The flag is honoured by giving salute and is hoisted with national music. After independence and until 17th July 1973, Afghanistan was a kingdom. The country became a republic on 17th July, 1973 under the leadership of Mr. Mohammad Daud. Afghanistan is divided into 29 provinces and the capital of the country is Kabul. Each province is governed by a Governor. The first anniversay of the Republic was celebrated on 17th July, 1974. The regime of the Government is a military rule. After becoming republic so far no elections have been held. The population of Afghanistan was 20 millions in the year 1973. Most of the people are agriculturists. The dress of women consists of black " kamis " and red specially stitched trousers and green " chader " all decorated with special designs. This dress costs a lot and requires much cloth and ornaments. The man's national dress is of white clothes, specially stitched form, turban and " chapan ". This dress is not worn always, but used only occasionally. In daily life, the Afghanis wear dresses like other eountries.

Official languages are Persian and Pushto. Turki, Pashai, Azbaki languages are also in existence in a few provinces and for these languages radio broadcasting programmes are also there; but newspapers and college and school books are in Persian and Pushto languages only. All the people of the country are Muslims. The main festivals are Id - ul - Fitr, Id - ul - Zuha, Milad - un - nabi which are religious. The present construction of dwelling houses is copied from the European style. Common blocks are not in use and the people like to own houses individually.

The main food is wheat in the form of " Nan " and mutton, beef and vegetables. Fresh and dry fruits are much eaten. The educated people form only about 25% of the population in the country. For recreation, the people visit various parks, gardens and historical places and enjoy the natural scenery of the country. The famous sports are buzhkushi, wrestling and horse riding. All other international games are common. The sport of Buzkushi is unique. Afghanistan is also famous for the Afghan hound, which is a very handsome, fast and intelligent dog used for hunting. The body and ears of the dog are long. The people of Afghanistan maintain cordial relations with other countries.

Roads are the main means of transport in the country. All the highways from Turkham, Paktia, Herat and Qunduz meet at Kabul; all the highways and most other roads are taт roads. The longest highway is to the west of Kabul, about 1200 km. from Kabul to Herat. The common width of tar road is 6 to 8 m. There is no railway so far in Afghanistan. The Government plans to form railways in the country in 1976. There are two international airports, one in Kabul and the other in Kandahar. In many of the provinces they have their own aerodromes. The flights are between most of the Asian and European countries.

The percentage of forest is about 25% of which 20% is natural and 5% artificial. The important forest species are conifers iucluding pines, oak, pistacia poplars and willows. Only poplars and willows are revived artificially. The most important species are conifers. Tha main commercial products of the forests are Pista, Jalgua and walnut which have a good market in European countries. Afghanistan is self-sufficient in timber. So far they have not exported timber to foreign countries; but the Government is considering to export timber shortly to other countries. A good sum of foreign exchange is fetched by minor forest produce every year. Various measures like afforestation of barren lands, soil conservation, parture land, construction of roads in the forests, training of staff, protection, etc. are fast progressing. There are a number of foreign experts under F. A. O. and the experts of German project working in the forests of Afghanistan.

Afghanistan has a forest school in kabul and the rest of the staff of the Forest Department is taken from the Agriculture faculty. A number of staff members are sent to various European, American and Asian countries for special training in Forestry. The forest official grades are more or less like that of India. but are named in Persian. The pay for a forester who is trained in a forest school is about 1600 Afghani which is equivalent to Indian Rs. 320/- and it will increase every 2 years by about 10% of his pay and this is maintained throughout the country. The Head of the Forest Department is named as the Forest President and he works directly under the Ministry of Agriculture and Irrigation. There are 4 forest officers trained in the Southern Forest Rangers' College, Coimbatore, in 1966 - 68. They have proved good and efficient there. After their training in the Southern Forest Rangers College, in India, and returning to Afghanistan they visited some other countries like Iran, Turkey, Australia

for the purpose of training and now three of them are in Indian Forest College, at Dehra Dun, India and the o'her one has returned from the Indian Forest College, Dehra Dun last year.

The main food grain is wheat. Rice and other cereal crops are also cultivated. The Government helps farmers by giving loans, providing chemica fertilizers, providing small agricultural machines on loan or on hire. Various steps for water supply are taken by the Government and cooperatives are developing progressively. Afgha nist an is self-sufficient in food grains, but due only to natural calamities like drought, sometimes it becomes necessary to import wheat from America. The country is not industrialised much, so all kinds of machinery and technical implements are imported mainly from Russia, Japan, America, France, Germany, Switzerland, England and India. The main export of Afghanistan is various kinds of dry and fresh fruits, Quraqul skins, rugs, cotton, wool, animal products, gas and minerals, etc. These items are exported to Russia, Japan, America, France, Germany, Switzerland, India, etc. The fruits of Afghanistan are famous throughout the world for their quality and taste. Afghan rugs and Quraqul are also famous for their beauty and speciality.

The places of tourist attraction are Bamyan, Balkh, Herat, Kabul, etc. There is a tourist department to help tourists and all facilities are made available to them. The Tourist department provides skilled guides to tourists, as also tourist maps, arrangements for lodging and boarding, etc. Many tourists from all over the world visit Afghanistan every year attracted by the historical values and hilly country. The currency of Afghanistan is Afghani and its value to an Indian rupee is 5:1 i.e. 5 Afghani is equal to Indian Re. 1/-.

In general, Afghanis are famous for their patriotism and also for their hospitality to any guest whether known or a stranger. The people of Afghanistan are healthy. The average height of the people is 1.75 m. and average weight is 65 Kg.

After becoming a republic, the country has taken much interest towards industrialization. Afghanistan with its beautiful natural resources and cheerful people is marching fast towards prosperity and progress, so as to achieve a still more colourful place for itself in the world map.

Sports Day in the Southern Forest Rangers College Coimbatore—1975

S. JOHN JOSEPH, I. F. S.
Officer incharge, Sports Section.

The Annual Sports day is a day which the students eagerly look forward to in the humdrum life of this college. The college lays special emphasis on physical fitness and it is worth mentioning that sports and games are treated as co - curricular activities.

By and large the participation in sports and games is encouraging considering the limited time they spend in headquarters and the tight dawn - to - dusk schedule they have almost everyday. Promising athletes take it upon themselves to snatch some time amidst the multifarious activities of the college to train and improve their performance. It is heartening to see an athlete training for the sports day by hurling a disc or javelin, clearing a bar or jogging along the track with bursts of speed

Much organisational effort goes behind the day and the programme of the function consisting of numerous track and field events is gone through smoothly at a set pattern and pace. This year, Sports Day came on 1-3-1975 and Commander R. N. Gulati, Commanding Officer, I. N. S. Agrani was the

chief guest for the function. As usual students under the leadership of senior students P. V. Joshi and Ramanand put in special overnight efforts to decorate the field gaily. The special banners, pennants and cut outs done in Olympic style added colour to the function.

At 2 O' clock sharp the programme for the day commenced with the march past. To the tune of the police band the students marched past, the Chief Guest led by the Sports Secretary in their resplendent blazers and immaculate white trousers. The march past elicited flattering comments from one and all in the audience. As soon as the Sports Secretary administered the oath of "fair participation in this true sportsman spirit", the Chief Guest, Commander Gulati, declared open the meet.

The events were conducted one after the other strictly according to schedule. The performance of S. K. Patani (a Senior student from Gujarat) brought thunderous applause. He excelled the others in speed, form and style and virtually swept the board. He won first places in 100 metres, 200 metres, javelin throw, discus throw, hammer throw and high jump and second places in long jump and triple jump. He also broke the 16 - year old record in discus throw and established a new record. Next to him the performance of K. B. Thampi who secured first place in triple jump and 110 metres hurdles and two second places is the best. Sugirtharaj, Rennenson, Sadashiva, Khan, Sreedharan Nair and Vernekar also distinguished themselves by their excellent performance.

In the officers' event our beloved Principal did his best to outrun Mr. Jayaraman backwards. Our old boys flexed their muscles in putting the shot. Mr. K. M. Kuttaya won this event comfortably.

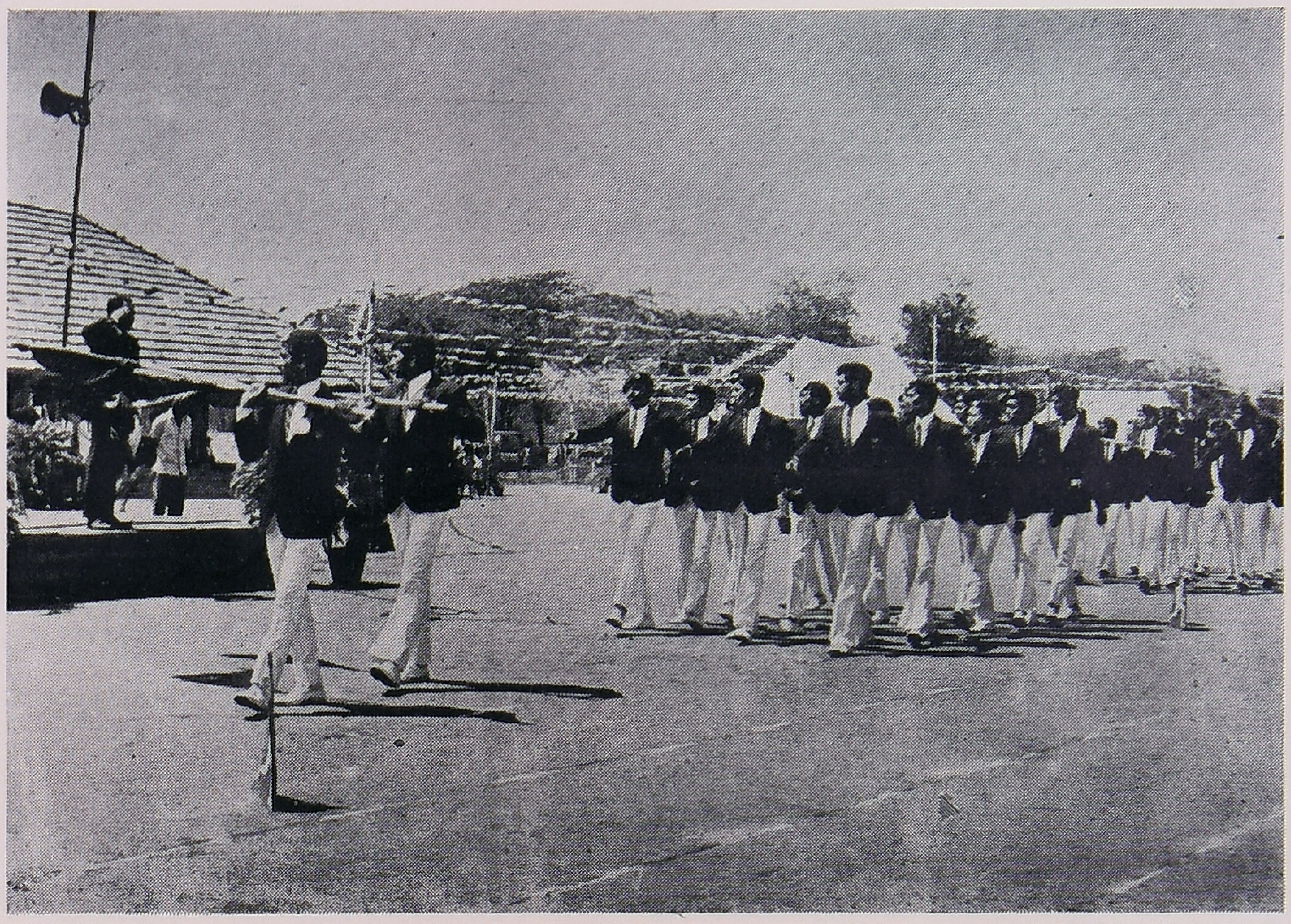
The long - awaited Gymkhana event provided an amusing interlude to the meet. Being the International Women's Year, the ladies were to the fore and it became well nigh impossible to secure partners for these gallant ladies from the shying gents. The Misquiths won the event with their quick wits, speed and luck.

Miss Marama, our popular girl student from Fiji Islands and Miss Kalyani, our atheletic Research Assistant kept up a lively commentary from the announcing booth throughout the afternoon.

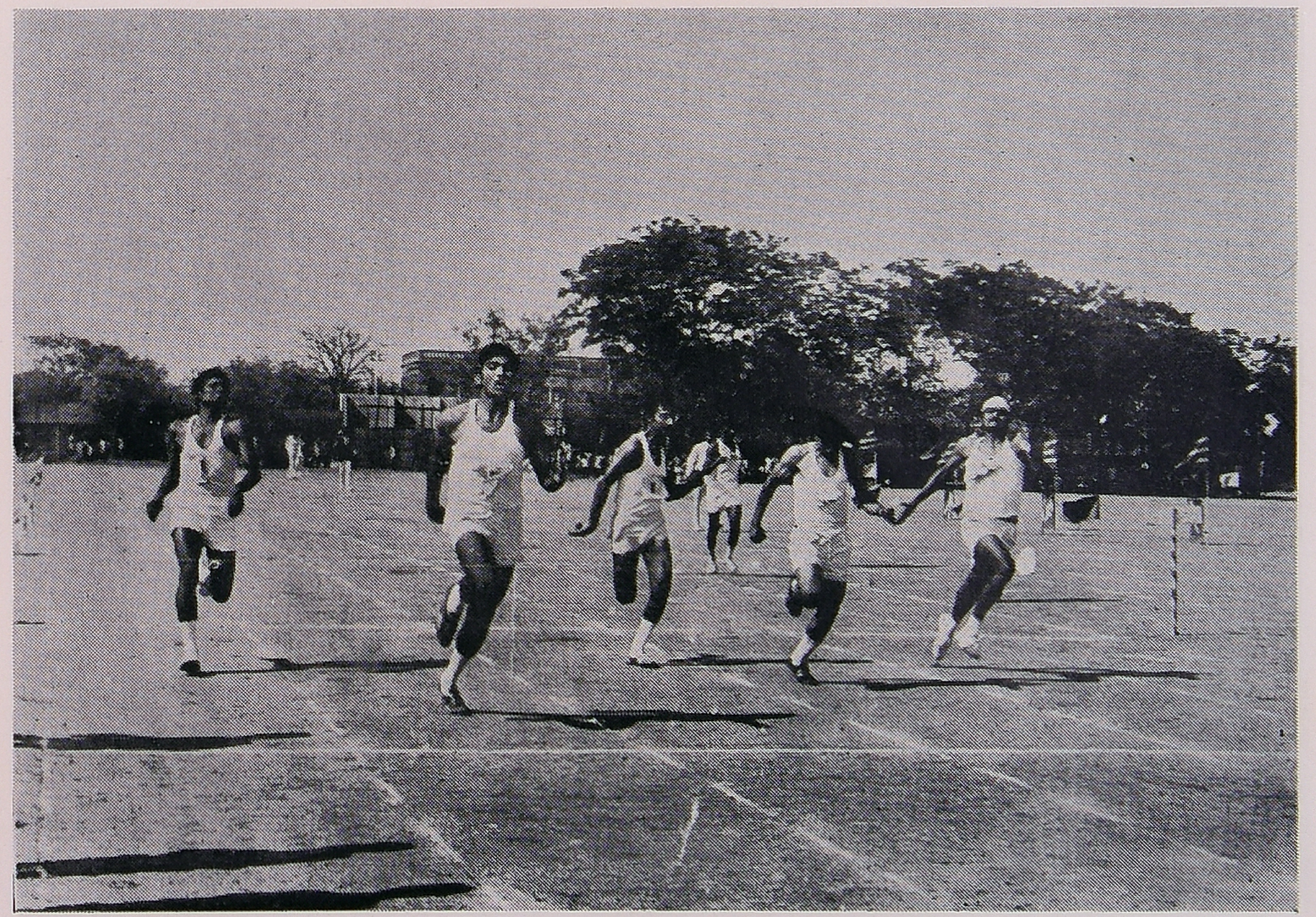
During the tea interval the fancy dress competitors regaled the audience with their talents and frolics. Ajmeri in the garb of a snake charmer produced a live snake from the basket to the surprise and horror of many. As a finale, the tug-of-war brought out the team and fighting spirit in the students and it was a victory for the muscle and brawn of the hefty nine of Senior A division.

At the closing function Mrs. Gulati gave away the prizes. The Richmond cup for the outstanding athlete of the meet and the Uberoi cup for the pentathlon were both awarded to S. K. Patan[1]. Senior A divisions won the coveted Sankunni Menon's Rolling cup awarded to the best team in athletics (track and field) and also the Laungani's Rolling cup awarded to the division securing maximum number of points in field events. Junior IInd batch won the Sitabai Rolling cup for the team securing the maximum number of points in track events. The chief guest congratulated the winners and organisers of the meet. In his breef speech he dwelt upon the rewards that come to those who keep themselves physically fit and mentally alert in their career.

A list of prize winners is appended herewith.



The Colourful Marchpast.



S. K. Patanis finishing runs (100 Metres)

SPORTS DAY

Our Principals Speech in Closing functions.

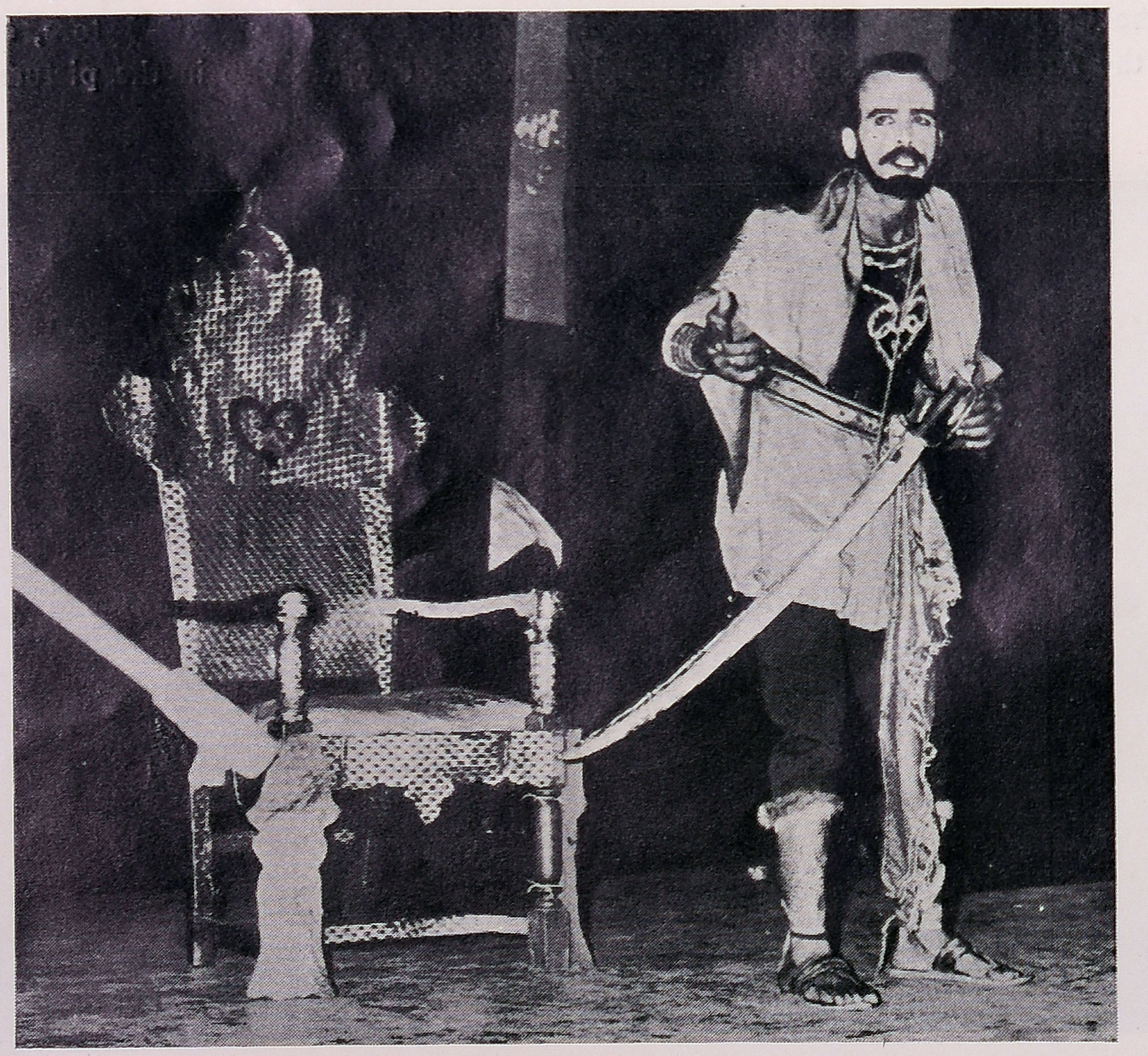
The Champion receiving the Richmond Cup from Mrs. Gulati.

ASSOCIATION DAY

The Chief Guest Shri Lakshmikanthan Bharathi, Collector of Coimbatore, cuts the Annual Day Cake, Principal and Asst. Secretary are also in the picture.

Scene from Telugu Skit.

Scene from Sri Lanka Baila Dance.



Monoacting by Ramachandran.

ANNUAL ATHLETICS SPORTS 1–3–1975

PRIZE LIST

Sl. No.	Name of Events	I Prize awarded to	II Prize awarded to
1.	100 Metres Race	S. K. Patani	K. R. Baig
2.	200 ,, ,,	S. K. Patani	G. Rennensen
3.	400 ,, ,,	K. B. Sugirtharaj	G Rennensen
4.	800 ,, ,,	N. A. M. Khan	G. Rennensen
5.	1500 ,, ,,	K B. Sugirtharaj	M. H. M. Farook
6.	110 Metres Hurdles	K. B. Thampi	P. Sadashiva
7.	Shot Put	P. Sadashiva	K. B. Thampi
8.	Discus Throw	S. K. Patani New Record-30.7 m. Old Record-29.43 m.	M. V. Naik
9.	Javelin Throw	S. K. Patani	M. V. Naik
10.	Hammer Throw	S. K. Patani	V. T. Korvadia
11.	Hop Step and Jump	K. B. Thampi	S. K. Patani
12.	High Jump	S. K Patani	K. B. Thampi
13.	Long Jump	R. S. Vernekar	S. K. Patani
14.	Pole Vault	M. Sreedharan Nair	T. Manickavasagam
15.	Slow Cycle Race	D. P. Tipre	D. N. Chodanker
16.	3500 m. Fast Cycle Race	I. R. Chavan	D. Mani
17.	Sack Scrimmage	Abdul Aleem	V T Korvadia
18.	Servants Race	Rajamani	Rangaswamy
19.	(a) Office Staff Race (Above 40 years)	K. Thirumurthy	I. Manuel
	(b) Below 40 years (Fast Cycle Race)	N. Nagarajan	Nanjundeswaran
20.	Gymkhana Event	Hector Misquith & Rosemary Misquith	M. S. V. Raja Ram & Mrs. Sehgal

ANNUAL ATHLETICS SPORTS 1-3-1975

PRIZE LIST

Sl. No.	Name of Events	I Prize awarded to	II Prize awarded to
21.	Children's Race — Boys above 10 years	P. Ashokan	Yusuf
22.	,, Below 10 years	Sudhakaran	Sulaiman
23.	,, Staff	Gyandev	Farid Ahmed
24.	,, Girls	Mohini	Usha Priya
25.	Fancy Dress Competition	Rajendra Babu	A. M. Ajmeri
26.	Officers' Event (College & F. R. C.)	Mr. V. Jayaraman	Mr. M. P. Misra
27.	Old Students' Event	Mr. K. M. Kuttaya	Mr. P. A. Abraham
28.	Tug-O' - War	Senior A Division	Junior II Batch
29.	4 × 100 M. Relay Race Inter - Division	Senior A Division	Senior C. Division
30.	4 × 100 M. Open Invitation Race	G. C. T.	A. A. U.
31.	Marathon Race	K. V. Kunhabdulla	D. Mani
32.	Orienteering	K. V. Kunhabdulla	B. L. Dubhele
33.	Championship Richmond Cup Awarded to	S. K. Patani	
34.	The Uberois cup for Pentathlon awarded to	S. K. Patani	
35.	Sankunni Menon's Rolling Cup (Best house in athletics track and field events combined) awarded to	Senior 'A' Division	
36.	Sitabai Rolling cup (for the house securing the maximum number of points in the track) awarded to	Junior II Batch	
37.	Laungani Rolling Cup (for house securing the maximum number of points in field events) awarded to	Senior 'A' Division	
38.	Special prize for Announcer	Miss K. M. Yelikanacea	
39.	Special prize for Decoration	P. V. Joshi	

Sports Achievements 1974 - 75

S. B. BALEJA
Hon. Sports Secretary
73 - ' 75 course

As usual, we have taken keen interest in sports and games events this year also. The athletes have brought us honour and prestige in the C. I. C. A. A. held on 22nd and 23rd August. This year the general performance in all sports events and games has been good despite some snags here and there. I would like to summarise here the various sports activities during the year 1974 - ' 75.

1974 was a glorious year in the history of our crieket team. In this year they entered the second division league; through out ' 75, their efforts were mainly directed towards remaining in second division rather than showing any progress. Our team played 11 matches out of which 4 matches were won, 2 drawn and five lost. The losses which we have incurred, so far this year are not due to any lack of enthusiasm or team spirit in the players. As is commonly acknowledged, cricket is an unpredictable game and our losses cannot be taken very seriously.

(Genuine bad luck and more than our fair share of downrignt bad umpiring have been largely responsible for at least some of the defeats - Ed.)

Cold statistics apart, the college cricket team has fceatured some splendid performances. K. Varaprasad, the captain with his uncanny ability to frustrate the batsman created a record by taking 9 wickets for 33 runs in the league match played against Coimbatore Cotton Mills on 2-3-75 which we won handsomely. N. A. M. Khan who is one of our best batsmen helped in drawing the match against C. C. M. on 24-8-75 by scoring sixty excellent runs. P. H Sata with his copybook style and polished skill batted well in all the matches and excelled in two, scoring more than fifty in each. There were also fine performances by Majumdar, M .V. Naik, Vernekar, Bhalani and Shankaran. In the festival match played on 15th August '75 between House Tutor's XI and Principal' XI, the non - playing players' performance was praiseworthy, especially the fielding of Miss Marama. The House Tutor's XI won by 2 wickets.

Mr. M. Harikrishnan, I. F. S. has taken unceasing interest in the cricket team's progress; he has guided them to victory and consoled them in defeatt He has been the driving force behind the team with his clear perception and unerring judgement. We look forward to more good cricket by our team.

This year our performance in the C. I. C. A. A. has reached sublime heights. From anonymity, S. F. R. C. has risen to the 5th place with excellen. individual performances by S. K. Patani, Sreedharan Nair and K. B. Thampi. with great pleasure and pride I announce the achievement of our athletes. (1) S. K. Patani - 1st place in High Jump. 2nd place in Discus throw, 3rd place in Javelin throw. (2) Sreedharan Nair - 2nd place in pole vault (3) K. B. Thampi - 3rd place in Hop Step and jump (4) V. T. Korvadia - 4th place in Hammer throw and Discus throw.

Our football team had a good start, winning a friendly match with S. F. S (Trainees) Dehradun on our ground and the Kalaimani Memorial football tournament against P. S. G. Arts. Due praise must be given to the goalie S- K. Khanolkar, the captain T. K. Chaudhri, the full backs Varaprasad Rao, K V. Kunhabdulla and Sasidharan. Another player of great promise is Allavudeen. The latest match played on 6th October '75 against P. S. G. (Tech) was lost. In the splendid match against P. S. G. (Tech.) we fought well but lost at the last moment. This loss may be attributed to the fact that the students are concentrating ontheir final examinations and could not put out their best.

Our players, despite tight schedule on tour were able to scrape up some time to play hockey with a distinguished team, the M. E. G. offlcers' team at Bangalore, and met with an honourable defeat which they accepted with a smile. In four other matches also - one intercollegiate and three friendly - our team, which lost much of its power and spirit with the exit of former captain Rashid Khan, faced defeat.

Our Basketball players did not get the chance to show their skill in intercollegiate tournaments because of the periodical examinations conducted during that period. Our Ball badminton team headed by A. M. Ehiya was knocked out in the first match, but they lost to the champions of last year, Govt. Arts. Our Volleyball team has also come into the limelight by winning two matches against the I. F. S. (Trainees) on our ground and against the Allapalli Recreation Club at Allapalli. Maruthi college defeated us in the intercollegiate. In Tennis also we played many matches amongst staff and students.

Throughout the year Mr. S. John Joseph, I. F. S., Sports officer and Mr. K. M. Kuttaya Asst. Sports officer have taken great interest in every aspect of our sports and games activities. They arranged for the coaching of the students, inspired the players and guided me in arranging various sports and games events. I express my heartfel gratitude to these two veteran sportsmen and I hope they will continue their guidance to the trainees.

Kerala Forests and its Developments

DAI P. JOHN
1973—'75 Batch

Introduction .

Kerala, the evergreen state is blessed with an unusual wealth of vegetational features of a variety and diversity almost unique for so small a state. The keynote of the incredible luxuriance and richness of the vegetation is attributed to the plentiful monsoon showers she enjoys and the warm tropical climate.

Kerala has been famous from ancient times as the land of luxuriant forests, and as a rich store house of valuable timbers like rosewood and teak and also of valuable spices like cardamon, pepper, cinnamon, nutmeg and clove. The golden leaves of history and the travelogues of many ancient foreign travellers confirm this. The same history also records that the forests of Kerala have been subjected to centuries of burning, shifting cultivation and indiscriminate exploitation. In recent times, population pressure has been a threat to the forests. There is also a mounting demand from the industrial sector for more raw materials from the forests.

Forests :

This small state (1. 3% of India's area) has 9,400 Sq. km. of forest area (24. 1% of total land area) owned by the government. The per capita forest area is 0. 044 Hectare as compared to India - 0. 14, World - 1. 08 U. S. S. R. - 3. 75, Canada - 20. 7, U. S. A. - 1. 44.

According to forest types the forest area can be divided as follows :—

Evergreen and Semi - evergreen	4750	Km²
Moist deciduous forests.	3135	,,
Dry deciduous forests.	170	,,
Sub - tropical and temperate forests.	160	,,
Man - made forests.	1185	,,

80% of the total area is covered by working plans (vested areas are not yet covered by working plans).

The distribution of forest areas according to their use is as follows :—

Forest area available for timber production	8135	Km²
Forest area under Cardamom.	260	,,
Forest area set apart as wildlife sanctuaries.	780	,.
Forest areas not available for timber production.	225	..

Distribution of exploitable forest areas :-

Currently exploitable forest area	7200	Km ²
Potentially exploitable area	1715	,,
Other areas.	485	,,

The gross growing stock in Kerala's fortests is as follows :—

	In ' 000 Cu. m.
Plantations.	4,500
Evergreen and semi - evergreen forests.	87,800
Moist deciduous forests.	77,600
Dry deciduous forests.	940
Sub tropical and temperate forests.	500
Total :	1,71,340

Wood use :-

Rich forests have influenced the extent and pattern of wood use in this state. Timber is a dominant source of economic activity in Kerala. Also industrial wood increases the value of the forest.

Kerala produces about 10% of the total output of all the wood using industries of India. Also she exports wood and wood products of an estimated value of 220 million rupees annually. The total industrial wood use in Kerala is about 1. 8 million cu. m. and the wood - based industries employ about 30,000 persons.

The percentage break up of industrial wood use in Kerala is as follows :-

Paper and pulp.	26. 3%
Sawn wood.	53. 3%
Plywood.	3. 0%
Matches.	2. 9%
Fibre board and particle board.	1. 5%
Other wood - based industries.	13.0%

The average per capita consumption of wood in Kerala is 0. 32 cu. m. per annum. Of this about 75% is accounted for by fuel wood and the rest is consumed in the form of sawn timber, furniture, panels and industrial products.

Minor forest produce :-

The wide variety of flora from Kerala's forests is a source of many non - wood based economic products such as honey, wax, medicinal plants, gums, oilseeds, tanbarks, seeds, dyes, lac, grasses and so on. They form raw materials for several industries.

Wild life :-

The diversified forests of Kerala have an equally diversified fauna. Some of the common animals found in the wild life sanctuaries of Kerala are elephant, wild boar, sambar, chital, wild dog, sloth - bear and a wide variety of avifauna. Leopard, tiger and barking deer may also be sometimes found. The sanctuaries in Kerala are Neyar, Parambikulam, Peechi, Periyar, Vazhani - cum Peechi and Eravikulam. The Periyar wild life sanctuary at Thekkady enjoys a place of pride among wild life sanctuaries in peninsular India. The Eravikulam wild life sanctuary is a newly constituted specially created to recoupe the dwindling population of Nilgiri Tahr.

Development of forestry in Kerala :-

The early years of forest management involved mainly the extraction of mature and valuable trees like teak, rosewood and ebony, which were in demand both within and outside the state. Teak was in particularly great demand for construction works and ship building during the rule of the British. The Timber Syndicate of Malabar was founded in 1796 for the exploitation of teak.

In 1837 (20 years before Brandis wrote his working plan for Pegu forests), Munro wrote his report on the availability of teak in the forests of Travancore. So the credit of having been the first to introduce a simple working plan in India must be given to Mr. Munro.

In 1842 the earliest teak plantation in the world was raised in Nilambur by sowing seeds and transplanting seedlings. Kerala thus laid the basis of scientific forest management in India. The credit for this achievement belongs to H. Conolly, then Collector of Malabar and Chathu Menon, Sub - Conservator of forests. Today, the state has a total of 61,600 hectares of teak plantations.

In 1891 Bourdillon introduced in Travancore the stump planting of teak, which is now universally adopted. In 1955 softwood plantations were started to meet the demands of matchwood industries in the state Now plantations of *Bombax ceiba* and other such species cover 18,500 Hectares. In 1961 the earliest attempts to raise large scale pulpwood plantations of Eucalyptus in India were made in the High Ranges of Kerala. This Programme has succeeded in creating 26,600 Hectares of *Eucalyptus grandis* Plantations so far.

There is also a total of about 10,000 hectares of other plantations consisting of junglewood species, cashew, bamboo, sandal, wattle, tropical pines, etc.

In 1971 private forests in Kerala of a total area of 1880 Sq kms. were nationalised.

In 1975 January, the Kerala Forest Development Corporation was formed by the Kerala Forest Department. This is its biggest project so far. The Kerala Forest Development Corporation was formulated with the object of intensive development of forest resources in Kerala, on the basis of the recommendations of the National Commission on Agriculture. The corporation proposes to create extensive plantations of pulpwood and matchwood.

The present plan of the corporation is to raise plantations of 40,900 Hectares of Eucalyptus and 3,600 hectares of softwood in various districts of Kerala. In addition to this, 15,400 hectares of eucalyptus plantations and 2,280 hectares of matchwood plantations already raised by the Forest Department will also be brought under the management of the corporation. Thus the total

extent of plantations which will be managed by the corporation at the end of 10 years will be 62,180 Hectares. The immediate programme of the corporation is to raise new plantations in the districts of Trivandrum, Quilon, Idikki, Kottayam, Ernakulam and Trichur with its headquarters at Kottayam.

The rotation of eucalyptus is fixed as 10 years and for *Bombax ceiba* it is 27 years. The second and third rotations of eucalyptus will be coppice rotations. It is expected that the project will in due time be able to produce about 5.50 lakhs tonnes of pulpwood and 20,000 tonnes of matchwood annually.

The authorised capital of the corporation is Rs. 10 crores. Out of this, Rs. 6 crores will be provided by the Government of Kerala and the balance fromfinancing institutions.

The Kerala Forest Development Corporation will help quicker industrialisation of the state by producing raw materials required for various wood-based industries. This will also help in saving valuable foreign exchange by reducing our dependence on imported newsprint and similar products. The accelerated development of our forests will also provide employment to a large number of people especially in rural areas. It is expected that the corporation will create employment for about 10,000 people in various sectors.

On August 15, 1975, the foundation stone of the Kerala Forest Research Institute was laid at Peechi near Trichur. This Research Institute is formed to tackle the mounting new and complex problems in silviculture and allied forestry aspects. The research services offered by the Forest Research Institute, Dehra Dun and the Regional Research Centres have not been able to meet the needs of the state.

The establishment of a Forest Research Institute in Kerala was recomended by the Sub-committee on forestry of the State Committee on Science and Technology in 1973 and this recommendation is consistent with the guidelines given in the interim report of the National Commission on Agriculture, on forest research and education.

The Government of Kerala sanctioned the establishment of the Kerala Forest Research Institute in January, 1975 as an autonomous body. The management and affairs of the institute have been entrusted to the governing body of which the Minister of Forests Dr. K. G. Adiyodi is the Chairman. The director of his institute is Dr. Chandrasekharan and other members of the governing body are Dr. N. K. Panikkar (Chairman, State Committee on Science and Technology) Sri P. G. Muralidharan (Secretary, Agriculture (Forest) Department), Doctor P. K. Gopala krishnan (Secretary, Planning and economic affairs Department), Sri T. R. Sukumaran Nair (Additional Secretary, Agriculture Department), Shri K. K Nair (C. C. F. (Development) and Sri T. P. Devassy (C. C. F.). This is the first autonomous Forest Research Institute in India.

This institute will lay emphasis on research in the various branches of forestry oriented to the development of forests and forest based industries in the state. The structure of the Institute will be left flexible to meet the research requirements developing from time to time.

As it will take a few years to organise requisite facilities and attain full development the immediate programmes of the institute will be confined to subjects of high priority such as silvicultural problems, protection problems in man made forests, tree breeding and genetics, ecology and environmental aspects, eeonomics and marketing, forest management and essential service facilities.

This institute will work in close collaboration with the Forest Research Institute, Dehra Dun. The wood industries and universities of the state will also work in collaboration with other research institutes and organisations such as Botanical survey of India, Geological Survey of India, All India soil and land use survey organisation, National Sample Survey organisation, Central Soil Conservation Board, India Board of Wildlife, research centres under the Indian Council of Agricultural Research, Centre for Development Studies, etc.

The institute site is near the Agricultural University at Mannuthy so that the academic and other facilities available there can be fully utilised by the Institute. There will be bilateral arrangements for exchange of fellowships and/ or professorships between the two.

The institute will have adequate field research stations for geographical and ecological convergence and for proper control of operations The initiveragel two research stations will be at Nilambur and Thekkady.

Proposed future development :-

The Kerala Forest Department has proposed some future development programmes such as Integrated Teak Project, Modernisation of Forestry Management, More Scientific land use pattern and so on.

Let us hope that these developments will solve the problems in the forests of Kerala state and serve as a guide line for other states to follow and to reach the goal of self sufficiency.

(With reference to booklets published by the Kerala Forest Department).

Kanha National Park

C. VIJAYANATHAN PILLAI
1973 — '75 Gujarat

Kanha lures this self of mine,
Nay, not mine alone ; but of all who probe
its celestial beauty.

* * * *

Here meadow, grove and stream,
Fill all minds with joy and thrill.
(1)
Stretched out on the gently sloping lap of Mikil,
(2)
Lined by the lazy gurgling Banjar,
Reposes a dilapidated woodland of Sal ;
(3)
Widened by the grass green carpets like masal
O, Sal ! Pretty are thy golden leaves,
Felling down when passes a breeze.
Thy hefty bole and mighty crown,

Showering golden leaves down ;

(4)

Sighted from far enclaves,
Waits my heart, full of waves.

* * * *

Now here you see the stride of a tiger -
with movement full of lazy vigour.
Here runs a fine swamp deer,
To wipe its body on the grass clear.
Herds of moving spotted deer,
Heard at a distance - barking deer,
In deep woodland shade lordly gaur lurk
While on the green turf sprint elegant blackbuck.

* * * *

Still standing on the dormitory
And thinking on thy past history
Wondrous thoughts do flash through my mind
Devastating was the reign of man unkind
Still though late there came the thought
To protect Nature all the lot.

---

(1) Mikil Hills
(2) Banjar river
(3) Masal (Hindi)
(4) enclave of grass land
Heard - can be heard.

Mycoplasma Group or PPLO

V. T. KORVADIA
(Microbiology)
73 - 75 Batch

A bacterial group whose nature was for a long time obscure consists of the members of the genus Mycoplasma. In 1898 Nocard and Roux isolated the first member of this group in a cell-free medium from the pleural cavity of a cow suffering from a disease now called bovine pleuropneumonia. Hence it is also referred to as pleuropneumonialike organisms (PPLO). These cause other diseases of humans, animals and plants. Spike disease of sandal is caused by a member of this group.

POSITION IN PLANT KINGDOM

Plant Kingdom

↓

Divisions

1. Protophyta 2. Thallophyta 3. Bryophyta 4. Pteridophyta 5. Spermatophyta

Three classes

1. Schizophyceae 2. Schizomycetes 3. Microtatobiotes.

10 orders.

Order 10 - Mycoplasmatales

Family - Mycoplasmataceae

Genus - Mycoplasma.

Only 15 spp. have so far been isolated, hence this group requires further study and research to bring our understanding of their biology to a satisfactory level.

The cells of these bacteria are nonmotile, and very delicate and plastic because they lack a cell wall; it is also filterable like viruses. These organisms differ from other types of bacteria also in their extreme polymorphism and their method of reproduction. They differ from viruses in that viruses are ultramicroscopic and are also strict parasites where PPLO are not. The marked polymorphism and absence of obligate intra-cellular parasitism readily differentiates the PPLO from the rickettsiae also.

The parasitic members of this group require a heart-infusion peptone agar containing about 25% human or animal serum for cultivation.

They are soft and fragile being easily distorted in microscopical preparations. Cultures may contain various pleumorphic bodies such as round forms, small granules, rods varying from a few tenths of a micron (0.001 mm) to several microns in size. The small colonies on solid media have a characteristic "fried egg" appearance.

They are very similar to ordinary bacteria, viruses and the rickettsiae.

The Forest Labourer's Co-operative Societies in Gujarat

D. G. JOSHI
1973 — '75 Course

The government has a policy to organise co-operative societies of Adivasis (Forest Tribes) with the help of social workers for working forest coupes as a part of the comprehensive programme for their all round development. The objective of this movement was to ensure that the Adivasis and other forest workers not only got their fair wages but also shared the profits derived in coupe working.

With a view to implement the above policy, Forest Labourer's cooperative societies were formed in 1951. Govt. also decided that only societies sponsored by recongnised sponsoring agencies should be allotted coupes on reasonable terms and conditions as laid down from time to time. The sponsoring agencies were social service organisations working for the uplift of the Adivasis. There are two sponsoring agencies in Dang Forests viz. Sarva Seva Kendra and Vedachhi Seva Kendra.

Forest Labourer's co-operative societies are required to send their applications for allotment of coupes through respective sponsoring bodies to the Divisional Forest officers concerned before 28th February.

Out of the total area, half is allotted to the societies and the other half is worked by the department. The societies do all the work of extraction upto the transport of material to the depot. The society does grading or classification of timber according to the girth classes and species wise.

The upset price is fixed by R. F. O. with the help of the Secretary and Chairman of the Societies. This upset price should be approved by the D. F. O. Then the sale is conducted in the presence of the R. F. O.

The total expenditure incurred by the society for logging operations is subtracted from the total sale amount between the forest department and society as follows: 80% to the Forest department and 20% to the society.

Out of this 20%, 2% is given to sponsoring body and the rest of the amount is spent for the welfare of the members of the society after deducting the establishment expenditure.

There is a central committee which supervises the work of the society.

The following are the members of the committee.

(1) R. F. O.

(2) A member of the co-operative bank which gives loans to the society.

(3) One member from the sponsoring body.

(4) Five elected persons from the members of the society.

Membership of Society :-

An Adivasi in that locality can become a member of a society. The labour get a annually 2 to 4 months work in the forest. For membership, the person has to pay Re. 1/- as entrance fee and Rs. 5/- for membership. Wages are paid to each labour according to rates fixed by Wage board.

Distribution of Profit :-

From the 20% profit the society gives 2% profit to the sponsoring body. The rest of amount is spent for the welfare of the members of the society. The society works for the welfare of Adivasis in their locality by way of construction of schools, hospitals, ration shops, co-operative stores, etc. Details of amount on 80:20 basis earned by the Forest Labourer's co-operative societies and the state during the years 1961-62 to 1968-69 are as under :-

Year	Govt. Shares on 80% basis	Societies Shares on 20% basis
1961—62	75,53,890	18,88,472
1962—63	69,15,764	17,28‘941
1963—64	79,79,463	19,94,866
1964—65	1,14,59,013	28,64,773
1965—66	1,50,87,877	37,72,119
1966—67	1,87,93,375	49,98,334
1967—68	1,50,30,735	37,57,683
1968—69	2,58,18,536	64,56,634

Number of coupes allotted to the societies during the period 1961 - 62 to 1971 - 72 are as under :

Year	No. of societies working	No. of coupes allocated
1961—62	101	302
1962—63	96	281
1963—64	104	329
1964—65	119	332
1965--66	116	333
1966—67	105	358
1967—68	110	342
1968—69	106	370
1969—70	121	380
1970—71	130	367
1971—72	132	424

References :- 1. Gujarat Forests - 15 Aug 1972

2. Tour journal.

Stray Observations on Gujarat Forests

C. VIJAYANATHAN PILLAI
1973—'75 Gujarat

Here are some observations about Gujarat forests, summed up under three heads - vegetational, economic and wild life. Most of this information is collected during our tour and is significant as this is the first time our tours are extended to Gujarat forests.

1. Vegetational facets.

Gujarat has got some peculiarities in respect of its forests. Being the westernmost state of India and its western half being in an extremely dry condition the vegetation varies considerably. It falls among those states with the least share of forest area. Most of the woodland vegetation occurs along the tracts bordering Maharashtra, M. P. and Rajastan. The luxuriant nature of vegetation in this tract is a clear indication of the ameliorated climate enjoyed by it. But the rest of the forests scattered in the western part are practically devoid of economic importance. These degraded forests exist as a living example of the ruthless intervention of biotic factors in the past. From considerations of economic development also the western half of the state stands far behind the other half.

a) Grazing.

Even with a host of handicaps in the case of vegetative cover, Gujarat is among the leading milk - producing states of India. Still the colossal number of cattle in the state grazing in the forests is not justified.

Though some of the milch cattle breeds of Gujarat are famous, the total cattle population of the state which is as high as 150 lakhs, is far above the carrying capacity and it hampers the over - all agrarian economy. Most of the cattle do not yield milk and their existence even as manure producers cannot be justified. Authorities are unable to find a solution to this grave problem, as the villagers consider large herds of cattle a symbol of economic prestige.

Grazing in Gujarat is by and large free and it is the greatest single factor responsible for the deterioration of the forests. The ill - effects of uncontrolled grazing are not confined to the degradation of forests Once the vegetative cover is removed soil which had been formed and enriched over millions of years is washed off in just a few years. Actually the ever threatening hazards of drought and flood faced in alternate years is largely due to the degradation of forests.

If the forests are to be brought back to being, if they are to remain as the perpetual suppliers of raw materials and above all if the cattle resource itself is to be maintained at optimum productivity, the greatest destructive element viz. grazing must be brought under positive control, as also the cattle - keeping of farmers.

b)Extension forestry :-

As matters exist, the forest area of the state is as low as 9% with a deficit of about 25% as per the principles of the National Forest Policy. So the state can never be content with the available forest area, but when we study the scope to extend the area under forest, we are struck by the grim realities of the invasion of agriculture. The land hunger which is already high does not allow the dream of the hunger which is already high does not allow the dream of the

forester to come true. The only alternative is to take up bits of lands, scattered over the villages as panchayat common lands, panchayat roadsides, bunds of village tanks, school and college compounds, lands belonging to private institutions and agricultural field boundaries For carrying out this aspect of extension, a separate wing is instituted in the forest department. This wing has already done commendable work, some valid examples in this connection are given below.

(1) With the rapid advancement of industrialization, the suffocation of city life was much experienced in Gandhinagar and Ahmedabad. When the capital was shifted from Ahmedabad to Gandhinagar this difficulty was felt all the more. The shade and coolness of trees were much needed. River Sabarmathi which had already created a large number of gullies in the fallows on either sides increased the urgency. A green belt of trees was raised in Gandhinagar with the following objects.

(i) To provide a sylvan belt between the residential area and industrial complexes so as to exclude the pollution of smoke, heat and sound.

(ii) To bring fallow land under productive use.

(iii) To provide shade, greenery and colour to the capital.

(2) The Temple plot plantations and Smritikunj are two ventures in this field which aroused great appeal among the public. The visitors to Gandhinagar anxious to maintain a living monument to their near and dear ones are requested to plant a tree in the 'Smritikunj'. The department looks after it in the name of the person whose memory it is planted for and the visitor is free to go and see the tree at a later date. This has opened up new vistas in the tree planting activities and new dimension in the scope of Vanamahotsava.

(3) In 1973, Gujarat witnessed a serious flood which was the deadliest of its type in the last thirty years. In addition to the moffusil areas the low lying areas of Ahmedabad city were also submerged. When the water receded

the scene that unrolled before one's eyes was pathetic. The road leading to Vasna Sewage plant used to be covered by sand deposited by wind, as there was no barrier to prevent this. Goaded by these experiences the municipal authorities sought the help of the forest department to raise a woodland here extending over an area of 20 hectares. The Casuarina plantation raised here by the department is quite promising and is expected to serve the purpose of arresting the wind erosion.

4. Of late it has been observed that the cable feeders of Tarapore Power Station which gives the bulk of the power required for the State are corroded and disconnected repeatedly due to deposition of salt in the cables, by the salt laden winds blowing from the Sambar lake. This very fact led to the loss of millions of man - days in the last few years due to power - failure. The Govt. is studying how to tackle this problem by planting up protective belts.

5. Mention must be made here of [illegible]rivate individual by name K. B. Patel - a farmer in Vatwa, near Ahmedabad. He understood the gravity of the serious danger through which the state was passing due to the lack of vegetative cover and came forward to contribute his share to extension forestry; he started planting eucalyptus in his 24 hectares of private land after acquiring considerable knowledge regarding Eucalyptus from all possible sources including Forest Research Institute, Dehra Dun. He visited Nilgiris also to study the the growth patterns of bluegum and rosegum. In his irrigated farm, in addition to Eucalyptus, he grows some cash crops in the interspace. He is quite convinced of the good prospects of planting Eucalyptus. His net profit per acre per year (Rs. 2,666) is comparable with even the best of agricultural crops. This revolutionary venture is considered the first of its kind in India on the part of a private individual and it is hoped that many more farmers will emulate Mr. K. B. Patel.

c) Botanic garden in waghai.

This is the only botanic garden in India, maintained by the Forest Department. This garden extending over an area of 24 hectares, on the bank of the river Ambika and sandwiched between the two roads leading to Saputara and Waghai, is being developed in a scientific way.

The main feature of this garden is that here the species are separated according to their vegetational characters viz. deciduous, evergreen, etc. Now there are about 1200 species here, the aim is to have 10000 species.

This garden is well designed for aesthetic as well as study purposes. All the species are fully labelled. Bamboos and medicinal plants also are tried here. A herbarium is also collected to identify species. The area of the garden is divided and distributed into plots for evergreen area, arid area, deciduous area, thorny area, bamboo area, taxonomy area, picnic spot, preservation plot, etc.

d) Fire Protections :-

The forests being mainly of the deciduous type, they are prone to fire in the summer season. It has been estimated that practically all the forest areas except young plantations are burnt by fire once in 5 years; in many places fire is an annual occurrence. Most of the fires are incendiary, being caused by shikaris, cultivators, M. F. P. collectors, or by graziers Though forests in all the states of India suffer from fires practically very few modern methods are employed in fighting it.

Dangs District with 95% of its land area under forests carries luxuriant vegetation and brings in more than 50% of the total state forest revenue. The devastating effect of fires in this division and the need to minimise the damage caused by it has been well-appreciated. In addition to the usual measures of fire control such as maintenance of firelines, fire registers, fire maps, enforcement of fire rules, and awarding of rewards to villagers who render outstanding help in fire protection, wireless communication stations also are maintained for quick relay of information. For this purpose, one wireless control station at Ahwa headquarters Divisional H. Q. and fire substations in the Range H. Q. are established. Messages, regarding the occurrence of fire received at the substations are transmitted to the control stations. Measures are taken to send immediate help to the spot.

Twenty - three fire stations situated on the tops of high hills, each covering a considerable forest area around it, are maintained in the fire season. These stations are manned by fire watchers equipped with drums and flags (red and white). From these fire stations fire can be located and the information is relayed to the wireless station to rush men and materials to the site of fire for extinguishing it.

II. Economic facets.

Adivasi Co-operative Society.

The co-operative societies in Dang Forests are a continuation of the same type formed in the fifties by Sri B. G. Kher, the first Chief Minister of ex-Bombay state. The conditions that necessitated the formation of these societies are given below :-

i) The Adivasis are almost completely illiterate and they were excessively exploited by the forest contractors by way of long hours of work and low wages.

ii) Adivasis feel that forests which they consider as their abode and means of livelihood are being completely utilised by others. Left to itself this feeling could grow and turn into unlawful and unpleasant developments. So to create a sense of partnership among the Adivasis is very necessary.

iii) To raise the pitifully low standard of living of the Adivasis.

In both the working circles in Dangs-Conversion W. C. and plantation W. C.- half the number of coupes are worked by Adivasi societies. The societies are sponsored by two eminent social service societies named Sarva Seva Sangh and Wadsi Aghram-

In addition to the working of the allotted coupes, these societies do the third and fourth thinnings in teak areas. All the operations of the society are

guided by departmental officers. Each Adivasi pays Re. 1/- towards entrance fee and Rs. 5/- towards membership fee in the society. The overall functioning of the societies is convened by a Central Committee, Consisting of the R. F. O. and the Registrar of Co-operative Societies as ex-officio members, a member of Co-operative Bank, a member of sponsoring body and 5 elected members from among the labourers.

The charge of working coupes is given to the societies just as in the case of a contractor. The felled material is fashioned and brought to the Adivasi Timber Depot and is sold in auction (4 auctions a year). In addition to the labour charges given to the labourers, the societies get 20% of the net sale amount. This money is utilized for the social development of the Adivasis. This system excels even the most modern economic systems in which labour participation is allowed in mangement matters and will go a long way in guiding other states also.

However, the undue influence of political parties is reported to have an undesirable effect on the working of these societies. Some of the societies themselves play fraud in the working of the coupe. The increase in the number of societies is another problem. These are to be guarded against to keep this system effective.

III. Wild Life:

Pride of place among the wild animals in Gujarat forests is accorded to the Asiatic Lion in the Gir Sanctuary.

The lion was a not uncommon animal in central and Northern part of India until the not too distant past. Due to the blind rush of human civilization the wilderness was destroyed in several ways and now this regal animal is confined to the Gir Sanctuary. Once this species was driven to such a critical stage that only 15 were left. However, thanks to the untiring working of the departmental authorities the number is now upto roughly a couple of hundreds.

Of late it is being realised that the Gir Sanctuary is facing certain peculiar problems. This sanctuary suffers from the biotic intervention of the pastoral community called Maldharis. The efforts of the authorities to rehabilitate these people outside the sanctuary area has met with serious difficulties owing to the sentimental attachments of the people to this area. The abnormally excessive incidence of grazing animals, especially in the last drought year had posed serious problems Due to such heavy grazing the lion is deprived of its natural pray and takes instead the grazing cattle Ironically a major percentage of the cattle killed by the lions are not eaten by them as they are scared away by the villagers just after killing. They are interested in the hides of the dead animals which they are otherwise unable to get due to religious considerations.

Another rare species found in Gujarat is the Indian wild ass, confined to the little Rann of Kutch area. That unique resident bird with rosy pink and white plumage, long legs and neck and large curved beak, the Flamingo, is yet another unique feature of Gujarat's wild life. They breed in the Great Rann of Kutch and this area has been termed as 'Flamingo city' by Dr. Salim Ali. The heavy and rare ground bird, the Great Indian Bustard, and the semi-domesticated pea - fowl are other noteworthy species found here.

Paper and Pulp

T. B. CHATTERJEE
1973—'75 Course

In this modern age, it is impossible to limit the merits of paper. A saying goes "Palest ink is stronger than strongest memory". It is of course very true when the palest ink writes thoughts and ideas on paper to keep it in perpetuity.

Thin layers of the Egyptian water reed papyrus, pasted together, made ancient writing materials. Modern paper is named after this papyrus. Paper was made by hand in China about 105 A. D. from cotton rags and plant stems. Paper machines came in to operation around 1805 A. D.

We foresters are related to the paper industry in the sense that paper is manufactured out of pulp obtained from either wood, bamboos, or grasses and it the forest that supplies the raw material. Paper however can also be made from corton or anything that contains a fair proportion of cellulose. Cellulose is a linear crystalline polymer of glucose. Besides cellulose, wood has hemicellulose and lignin. Lignin acts as a cementing material cementing the fibres of wood together.

The relative abundance of cellulose, hemicellulose and lignin in softwoods and hardwoods is indicated below :—

	Cellulose	Hemicellulose	Lignin
Soft wood	43%	28%	29%
Hard wood	43%	35%	22%

(Soft wood — Wood of conifers.

Hard wood — Wood of broadleaved species)

Softwoods yield more pulp than hardwoods,the relative ratio being 4 : 1.

Pulping is the means of rupturing the bonds between fibres of wood. This can be achieved in three major ways: Mechanical, Chemical and Mechanochemical.

Mechanical Pulping : This can be done in two ways. Originally debarked logs were pressed lengthwise against a grindstone revolving at high speed. The thin slurry of fibre and fibre fragments was put through screens to remove slivers and other oversized particles. The slurry was thickened by removal of water and a pulp was made suitable for paper making. The three factors involved here in production of an uniform pulp were

1) Volume and temperature of water.

2) Pressure on the stone.

3) Roughness of the surface of stone.

The modern method is shredding and grinding chips of wood between metal shearing disks in a ' refiner '. This yields a better pulp than the former as the pulp has lengthier fibres and the paper made from it is stronger.

Chemicals (Fillers) and properties: Rosin, soap and alum prevent spreading of ink on paper. Clay makes the paper opaque and makes it print better. Dyes and pigments add colour to paper.

The fibrous stock next passes through a jordan. This is another version of beater.

The pulp is next rolled into sheets and made into paper by Fourdrinier paper machine. In this machine the sheets are drained of water, dried and rolled into paper cylinders (i. e. wound on some core).

Papers are glazed to give a better surface by Calender located before Winder. Some papers are further glazed.

Mechano - Chemical pulping: In this method of pulping, chemicals are utilised along with mechanical pulping method.

The chemicals can be introduced during grinding of pulp. Alum is introduced to reduce stickiness when pine with high resin content is to be mechanically broken down into fibres.

The entire log may also be pretreated with chemicals and then the pretreated pulp broken down mechanically into fibres.

Relative merits of different processes:

Process	Pulp yield	Strength of paper	Quality.
Mechanical	95%	Weak paper	Discolours easily.
Chemical:	40 - 45%		
Kraft	—	St onger paper	Pulp does not bleach easily.

Sulphite	—	Paper relatively Weaker to Kraft's process.	Papers are finer. Pulp bleaches easily.
Mechanochemical	75%		Intermediate between mechanical and chemical.

Uses of paper obtained from different processes.

1. Mechanical — Newsprint uses 85% to 70% mechanical pulp and rest 30% - 15% chemical pulp.

2. Chemical.

   (a) Kraft unbleached. — Brown packing paper, box, board, multiwall bags, etc.

   (b) Kraft bleached. — Writing and printing paper.

   (c) Sulphite — Rayon grade pulp.

Raw materials supplied by the Department :

Paper mills depend upon forests for the supply of raw materials. The Forest Department is constantly searching for a solution to the evergrowing need of raw materials for pulping. Generally Eucalyptus and Wattle make very good rayon grade pulp. Extensive wattle plantations have been raised in the Nilgiri hills and Kodai hills and Eucalyptus wherever suitable is also raised.

Conifers are also much in demand as pulping material. Conifer fibres are long and pulp from conifers is much valued as newsprint. Some tropical pines are under experimental planting at the Research Garden of Dandeli paper mills.

Bamboos i. e. *Dendrocalamus strictus and Bambusa bambos* form the backbone of the pulp industry, besides Eucalyptus. Sustained yield of bamboo is a major problem for the forest department. Staggering of bamboo flowering and raising bamboos of species that have not been known to have flowered are the current efforts.

Besides all these raw materials there is an ever growing search of other substitutes both indigenous and exotic. *Anogeissus latifolia* and *Sesbania spp.* are some of the substitutes discovered.

Among paper mills in India, Titagurth and Punalur paper mills are the premier mills. Now a host of paper mills has sprung up.

Consumption of paper per capita in countries (1965 figure).

U. S. A.	—	453 lbs.
U. K.	—	233 lbs.
Japan	—	126 lbs.
S. Africa	—	51 lbs.
India	—	2.6 lbs.
China	—	6 lbs.

Newspaper consumption per 1000 people (1965).

U. K.	—	600
Japan	—	400
Russia	—	279
Egypt	—	119
China	—	50
India	—	33

The above figures indicate that high consumption of paper taken place in developed nations.

Variation of Mendelian Segregation Quantitative Inheritance

K. PRABHAKAR RAO
1973—'75 Andhra Pradesh

Not all characteristics show Mendelian segregation clearly. Mendelian interpretation of inheritance can be applied only to qualitative characters that show clear cut segregation of phenotypes. It cannot be applied to quantitative characters such as the size of the organism, number of rows in a corn, yield capacity of crops, colour, weight and intelligence in man, amount of milk in cattle etc. which show continuous variation.

For example if a true breeding tall plant is crossed with a pure dwarf and the usual F_1 generation results in intermediate-sized plants, in the F_2 plants of various sizes are usually obtained showing a complete range of variation from one parental size to the other. The two or three classes which correspond to the two homozygotes and the heterozygotes do not appear. This type of inheritance is termed " quantitative inheritance ".

The distinction between classes obtained in the F_2 generation may be purely arbitrary. In the case mentioned above of a tall plant crossed with a dwarf, the offspring showed a blending of characteristics of both parents. Hence this type of inheritance also goes by the name "blending inheritance".

At one time quantitative inheritance was considered as of a different nature from Mendelian or unit factor inheritance, because of one's inability to distinguish unit classes. The only difference usually accepted between qualitative i. e. Mendelian and quantitative inheritance now is that characteristics of the latter are controlled by several genes rather than only one or two pairs, that these often are incompletely dominant and the effects of the genes are cumulative or additive. Hence this type of mechanism is also referred to by the name multiple factor inheritance or polygenic inheritance.

Among the earliest investigations that gave a significant clue to the mechanism of quantitative inheritance was the work of *NILSSON EHLE* (1909) with wheat. He crossed a red kernel variety of wheat with a white kernelled one. From the Figeneration it was observed that red was incompletely dominant over white and the F_1 heterozygotes were uniformly red, but of a shade intermediate between red and white of the parental generation. In F^2 generation he was able to discern five phenotypic classes in a 1 : 4 : 6 : 4 : 1 ratio. Noting that 1/16 of the F_2 generation was as extreme in colour as either of the parents, he theorized that two pairs of genes controlling production of red colour were operating in this cross.

Only one of the 16 individuals is white. Of the 15 red individuals only one has all 4 genes for red, and has darkred seeds. 4 classes have 3 genes for red, 6 classes have 2; and 4 have only one as shown below. (R_1, R_2-Red. r_1, r_2-white)

Genotype	No. of Genes for red col.	Phenotype	Fraction of F_2 gen.	Ratio
1. $R_1\ R_1\ R_2\ R_2$	4	Dark Red	1/16	
2. $R_1\ R_1\ R_2\ r_2$ or $R_1\ r_1\ R_2\ R_2$	3	Medium Red	4/16	
3. $R_1\ R_1\ r_2\ r_2$ or $r_1\ r_1\ R_2\ R_2$ or $R_1\ r_1\ R_2\ r_2$	2	Intermediate Red	6/16	1 : 4 : 6 : 4 : 1
4. $r_1\ r_1\ R_2\ r_2$ or $R_1\ r_1\ r_2\ r_2$	1	Light Red	4/16	
5. $r_1\ r_1\ r_2\ r_1$	0	White	1/16	

At a later date Nilsson Ehle crossed another strain of red-grained wheat and found a different ratio of 1 : 6 : 15 : 20 : 15 : 6 : 1. This was explained by the fact that this particular strain of wheat carried 6 contributing genes (3 pairs of alleles) for red colour.

The observation of Nilsson Ehle were confirmed by the study of skin pigment in human beings by C. B. Davenport (1913). Skin pigment in human beings appears to be a quantitative character varying from light to dark and it depends upon the relative amounts of the pigment *'Melanin'*.

Assuming that a negro has 4 coloured genes $P_1\ P_1\ P_2\ P_2$ and white has no colour genes $R_1\ R_1\ R_2\ R_2$. the F_1 *' Mulatto '* from the cross will be intermediate in colour between the parents with $P_1\ R_1\ P_2\ R_2$ genotype. In F_2, 1/16 was as extreme in colour as either of the parental type, 4/16 will be intermediate

between negro and mulatto (F_1) and has 3 colour genes, 6/16 will be intermediate as F_1 and has 2 genes, 4/16 will be intermediate between F_1 hybrid and white parent with only one gene for colour.

The difference in skin colour between negro and white seems to be due to more than two pairs of pigment genes, possibly to four or even more pairs. Davenport's hynothesis is essentially correct in that the heredity of skin pigmentation in man is due to the action of several colour genes with incomplete or no dominance and with additive effects. The pure negro having eight contributing genes has the greatest pigmentation of all. The mulatto with four is intermediate, and those with all eight neutral show the fairest skin

Polygenic inheritance is a statistical concept which emphasizes not the individual but population aggregates. Many genes are associated with metric tracts. The mendelian foundation forms the basis for the genetic mechanism of population as well as of individuals.

Features of quantitative inheritance :

(1) Segregations occurs at an indefinitely large number of loci.

(2) The effects of allelic substitutions at each locus are trivial.

(3) Phenotypic effects of gene substitutions are interchangeable i. e. genes have different biochemical functions but similar phenotypic effects.

(4) Natural populations carry great reserves of genetic variability.

(5) Blocks of genes are bound together by inversions and transmitted as units from the inversion heterozygotes to their progeny.

(6) Polygenes have pleiotropic effects i. e. one gene may modify or suppress more than one trait.

Pleiotropy is more manifest in polygenic inheritance than in single gene inheritance.

Variations in quantitative inheritance:

The variations in quantitative inheritance are due to series of multiple factors having cumulative effects.

1) Transgressive variation :-

In this case extremes have been obtained from some F_2 results which exceeded the corresponding values in the parents :

Eg : Punnet's cross of small bantam chicken and large Golden Hamburg chicken.

It was observed that the F_1 individuals were intermediate in size. F_2 individuals showed a surprise variation. Some fowls were larger than either parent and some were smaller.

Punnet explained transgressive variation by assuming that there are four pairs of genes which affect the body size in these birds. If these genes are represented by the letters ABCD for large size and abcd for small size and if we assume that the Golden Hamburg has *AABBCCdd* and that the Bantam has *aabbccDD*, we can correlate the results as follows.

Golden Hamburg x Bantam

AABBCCdd aabbccDD —Parents

Self bred AaBbCcDd Hybrid — F_1

AABBCCDD aabbccdd

Larger than parent Intermediates Smaller than the parent.

Analysis of quantitative inheritance :

Frequency Distributions : The cross of a red strain (AABB) with the non-red strain (aabb) will give an intermediate red F_1 hybrid (Aa Bb). A cross of F_1 hyprids will give in F_2 not only types of F_1 but also a range of variants from one parental type to the other due to segregation and independent assortment of alleles of F_1.

In a cross where 2 pairs of alleles are involved we get a genotypic ratio of 1 : 4 : 6 : 4 : 1. These types may be plotted on a frequency diagram, which gives a frequency curve if the tops of the lines are joined and it is similar to a normal frequency curve. Similarly frequency curves can be drawn for a cross where one pair of alleles segregates, 3 pairs of alleles and so on.

Mechanism of quantitative inheritance :

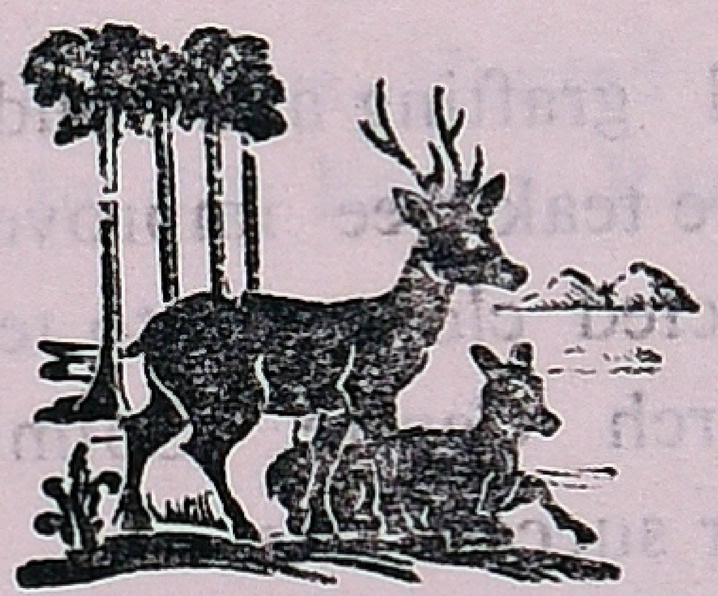
or Gen action in multiple gene system.

The mechanism of quantitative inheritance is not as well established as it might be seen from the examples. The multiple gene hypothesis was effectively illustrated by the kernel colour of wheat in which six genes with cumulative effect have been postulated. Later it was found that genes seem to contribute their effects not so much by adding or subtracting constant amounts (arithmetical) but rather by multiplying the effect of the residual genotype by some constant amount (Geometric effect).

In an effort to determine whether the mechanism of multiple gene inheritance is the same as that operating in instances of qualitative characters, several simplifying asseumptions must be made.

1. Each contributing gene in the series produces an equal effect.
2. Effects of contributing alleles are cumulative.
3. There exists incomplete or no dominance.
4. No linkage is involved.
5. There is no epistasis among genes at different loci.
6. Environmental effects are absent or may be ignored.

Nevertheless the basic mechanism operative in quantitative inheritance appears to be the same as those of qualiatative characters. Many traits are the resulcs of the interaction of one kind or other among several pairs of genes.



Scion on Stumps - an Innovation in the Vegetative Propagation of teak (Tectona grandis Linn. f.)

A. M. Mahmood Husain, &
T. R. Somasundaram.

Summary

The technique of field grafting and budding is now well established in several centres in India where teak tree improvement work is undertaken. The method of budding from selected clones on to teak stumps is newly developed at the Regional Forest Research Centre, Coimbatore and has a number of advantages, including a higher success rate.

Introduction

In its teak tree improvement programme taken up from 1970, the Regional Forest Research Centre, Coimbatore has chosen plus trees in Tamil Nadu, Kerala and Karnataka forests of moist and semi-moist types with the approval of the Forest Research Institute, Dehra Dun as follows: 20 from Tamil Nadu forests (denoted by the prefix TNT), 8 from Kerala (KLS, KLK and KLN

series), 2 from Karnataka (MYDV series) and 11 from Andhra Pradesh (AKB, NBB, AKD, and MN series). In the field station at Walayar RF, a clone bank (2 ha - 1970 and 1971) and a 20 - clone clonal seed orchard (2.6 ha - 1973) are being raised. The technique of field grafting and budding in teak described by Rawat and Kedharnath (1968) and by Knud Bryndum (1969) was adopted in these trials till recently. Both patch bud grafting and cleft grafting gave fair results, the highest percentage of takes resulting from September - October trials at Walayar. Rawat and Kedharnath (1968) have reported April - May as the optimum period for grafting in teak based on their experiments carried over 4 years at Dehra Dun. Knud Bryndum (1969) prefers November - December for the propagation in the seed orchards because it offers the advantage that breeding operations which take up considerable time and require careful supervision, do not coincide with other field work, such as sowing, planting, etc. Sprouting of buds before budding is also avoided at this period.

The new technique of budding the scion bud on teak stumps now developed confers a number of advantages.

Materials and Methods

The work done in the clonal seed orchard at Walayar alone is described below :-

This plot of 2. 6 hectares was planted with 722 teak stumps in May, 1973. The design approved by the Forest Research Institute for a 20 - clone orchard was adopted.

Patch budding

Scion materials (budwoods) 20-25 cm long were collected from among the topmost flowering branches of the plus trees. Cut ends were waxed and bundled in perforated polythene bags with identity labels and placed in an ice - box filled with moistened saw-dust and transported to the field station at Walayar. On available one year old stocks of suitable size, patch bud grafting was done from September 74. Patch buds 2.5 cm by 1.5 cm (obtained from

the clone bank at Walayar and supplemented by the buds collected from the plus trees) were grafted on to chosen stocks at the internode 15-20 cm from the ground and tied tightly by a polythene ribbon exposing the bud. The top end of the stock above 5 cm from the scion bud was pruned as soon as the sprouting of the bud was noticed after the take.

Budding on teak stumps

Patch budding on teak stumps was successfully carried out in September 1973, on a small scale, making use of the glasshouse just constructed. Budding on teak stumps was commenced in August 75 on a large scale. A note obtained in '75 summer through the courtesy of Shri K. A. Kushalappa, Silviculturist, Karnataka describing work done in the Teak Improvement Centre, Lampong, Thailand and visited by him confirmed the correctness of the technique evolved by us. The method as developed now in the Forest Research Centre is as follows :

Long-necked teak stumps over 2 cm. in diameter at collar were collected from a nursery with 8-10 cm long shoot portion. Budwoods collected from the plus trees in the Topslip area during August, Septemper and October 1975 were used for patch budding and double flap budding. In patch budding, the buds 2.5 cm by 1.5 cm were inserted into a bark cut just above the collar in the stump and tied tightly with a polythene ribbon or jute thread exposing the bud. In double flap budding, the patches were inserted in position under two flaps of the bark above the collar, exposing the bud in the gap and tightly tied with polythene ribbon or jute thread. After budding, the shoot is pruned 5-6 cm above the patch and waxed. About 20 cm of root portion is retained in the stump. The prebudded stump is planted in polythene bags filled with a mixture of sand, red earth and farmyard manure and placed in the glass house.

The glass house

The glass house has walls and roofs of tufflite 'E' grade fibre glass and mist propagation equipment, controlled by an electronic timer designed to give intermittent misting at desired intervals. Two desert coolers on one side and

two exhaust fans on the opposite side give a continuous cool draught of air inside when operated. Humidity and temperature inside are recorded continuously in a thermohygrograph on weekly charts.

The polypots were arranged on benches and sprayed with fine mist intermittently. Generally the mist spray was done for 30 secs. alternating with breaks of 3 minutes during day time (8 A.M. to 6 P.M) .

After healthy shoot development to an extent of 6 cm. or more, the polypots were removed outside and seasoned by gradual exposure to the open. After 50 to 60 days from the date of budding, successful stumps were planted in the clonal seed orchard at Walayar, uprooting the stock plants planted in 1973. The approved design was followed.

Observations

The observations on field budding in the 1974 and 1975 seasons and on stump budding in the 1975 season till the middle of October 1975 are summarised in the table following :-

Clone	Field Budding on Stocks: No. budded	Field Budding on Stocks: Date	Field Budding on Stocks: Successful No.	Field Budding on Stocks: Successful %	Budding on Stumps: No. budded	Budding on Stumps: Date	Budding on Stumps: Successful No.	Budding on Stumps: Successful %
1	2	3	4	5	6	7	8	9
TNT 1	15	30—9—74	3	20	53	24—8—75	43	81.1
TNT 2	...	...	...	...	17	,,	10	58.8
TNT 3	12	30—9—74	4	33.3	33	6—9—75	22	66.6
					52	7—9—75	26	50.0
TNT 4	...	...	...	...	117	25—8—75	91	77.7
					73	18—9—75	46	63.0
					61	,,	41	67.2
					19	23—9—75	8	42.1
TNT 5	19	30—9—74	1	5.2	37	18—9—75	29	78.3
TNT 6	19	26—9—74	14	73.6	25	28—8—75	21	84.0
	6	24—10—74	...	...	...	...	...	...
	6	14—3—75	...	...	...	...	...	...
TNT 7	...	...	...	...	32	7—9—75	17	53.1
TNT 10	18	11—10—74	3	16.6	18	24—8—75	8	44.4
TNT 11	...	...	...	...	63	18—9—75	30	47.6
TNT 12	...	...	...	...	20	23—9—75	...	...
TNT 13	...	...	...	...	71	23—9—75	22	30.9
TNT 14	...	...	...	...	22	23—8—75	2	9.0
TNT 15	17	16—10—74	6	35.2	23	17—9—75	4	17.3

1		2	3	4	5	6	7	8	9
TNT	16	22	7—12—74	2	9.0	67	18—9—75	30	44.7
TNT	17	...	...	...	...	9	17—9—75	1	11.1
TNT	18	...	...	...	...	18	17—9—75	4	22.2
TNT	19	...	...	...	...	23	24—8—75	8	34.7
TNT	20	...	...	...	...	47	24—9—75	15	31.9
KLS	1	13	28—9—74	5	38.4	106	26—9—75	82	77.3
KLS	2	13	28—9—74	3	23.0	127	26—9—75	91	71.6
		13	14—3—75	...	...	...	...	...	...
KLS	3	7	18—3—75	1	14.2	54	24—9—75	42	77.7
						68	25—9—75	35	51.4
KLS	4	19	30—9—74	3	15.7	53	26—9—75	20	37.7
KLN	2	19	28—9—74	4	21.0				
KLK	1	12	23—3—75	2	16.6				
KLK	2	21	8—10—74	1	4.7				
NBB	1	16	8—10—74	3	18.7				
		10	18—3—75	1	10.0				
AKB	1	16	8—10—74	4	25.0				
		10	14—3—75	1	10.0				
AKD	1	17	26—9—74	...	...				
		8	18—3—75	1	12.5				
		8	22—3—75	2	25.0				
AKD	2	16	25—9—74	3	18.7				
Total	...	352		67	19.0	1308		748	57.2

Conclusions

The stump budding technique is a very recent innovation and it is only two months now (October 75 end) from its first introduction here on a sizeable scale. But the indications are promising. It is interesting to note that the field budding method is now considered ' old - fashioned ' in Thailand, to be used only where for some reason the new method cannot be applied. The following are some advantages :-

1) Higher success rate - Even with buds yet to sprout, stump budding is far ahead of field budding in these first trials (57% against 19%). With more experience, a still better rate can be expected.

2) The uncertainty in field budding delays establishment of the orchard- Field buds have been known to remain dormant for long periods varying commonly from 164 to 338 days. In stump budding, sprouting begins earlier, starting from 9 days and precise and early assessment of results and choice of the best from the available planting material is feasible. When ripe for planting out in the orchard, the prebudded stumps present a picture of health and can be expected to register a high rate of success in establishment, barring unforeseen setbacks in the field.

Acknowledgments

The authors are thankful to Shri B. Arulprakasam, Geneticist, Tamil Nadu Forest Department, Coimbatore and his staff at Topslip for the facilities given for the collection of stumps and budwoods and for grafting and to Shri K. A. Kushalappa, Silviculturist, Karnataka for the information obtained from Thailand.

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Anon :- Instructive Notes for Royal Forest Department, Field Staff, Teak Improvement Centre, Lampong, Thailand communicated to the participants in the FAO/DANIDA Training Course (17-2-75 to 13-3-75).

Photographs on cover page.

Top left : The glass house, Botanical gardens, Regional Forest Research Centre, Coimbatore.

Top right : 40- day sprouts of three clones on teak stumps.

Bottom left : 40- day sprouts of another clone.

Bottom right : Freshly budded stumps.

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Wild Life Section Activities During 1974

T. C Ramakrishna,
Officer - in charge,
Wild life Section.

The wildlife section of the college organized the following functions during the year 1974.

The Inter-collegiate Eassay competition was held on 27-9-1974. The subject was " Management of Sanctuaries and National Parks ". John V. Gbondo of the Southern Forest Rangers College won the first prize. The second prize was won by Shri M. K. Bidi of the Southern Forest Rangers College. The Special prizes were won by J. Venugopal of Coimbatore Institute of Techonolgy and Miss V. Meenakshi of P. S. G. R. Krishnammal College for women.

The Intercollegiate Elocution competition was conducted on 5-10-1974 The subject was " Regulated hunting is preferable to total protection " The first prize was won jointly by Miss Premila Raj and Miss C. Portodi of P. S. G. R. Krishnammal College for women. The second prize was won by J. V. Gbondo of the Southern Forest Rangers College.

We also held a photographic competition on 28-10-74. First prize was won by R. Vincent and second prize was won by T. K. Choudhury, both from the Southern Forest Rangers College.

Wild life Day was celebrated on 28th October. Mr. T. B. Jambulingam, I. F. S., Conservator of Forests, Coimbatore, presided over the function. Mr. A. M. Mahmood Husain, I. F. S., Prinicipal, Southern Forest Rangers College welcomed the gathering. In his address, Mr. T. B. Jambulingam has stressed the need to conserve our Wildlife.

The wild life day celebrations featured a programme of variety entertainment. Several eductional institutions participated in the function and presented many prize-winning items. The college presented a topical play " Spotted Deer " with a theme to protect the wildlife from shikaris. Mrs. S. Kondas gave away the prizes. Mr. T. K. Srinivasan, I. F. S., D. F. O., Coimbatore Central division presented a vote of thanks.

We are indebted to the Principal, members of the staff and the District Forest Officer, Coimbatore Central division for their kind co-operation and guidance, and are confident that the wildlife section of our Association will take big strides forward in the coming year.

Wild Life in Andaman & Nicobar Islands

V. Chandrapandian

1973—'75 Course.

The word "Andamans" makes us imagine a rich natural floristic composition which is absolutely correct. Most of us may imagine that the fauna is also equally rich in Andamans.

Nature has endowed these islands with great floristic wealth. Most of the species are completely indigenous to these islands. On the other hand, except for the birds the fauna is comparatively scanty. The largest indigenous wild mammal is only the Andaman pig (*Sus andamanenisis*) which is much smaller than the mainland pig. The other indigenous mammal found in the islands is the Civet cat (*Paguma larvata tytlery*). The black-faced monkey is found in some of the islands of the Nicobar group. The wild goat occurs in barren lands and it is reported to live on sea water.

Apart from the above indigenous mammals, a number of deer species were introduced in these islands in the early twenties. Of these spotted deer, barking deer and hog deer have survived, but spotted deer has thrived beyond

expcetation and now all the islands within swimmable distance from the main islands are populated by herds of cheetal. This animal has spread all over the islands of the Andaman group except Ritchies Archipelago and little Andaman. It has become a menace to young regeneration.

As regards reptiles, there are a number of species of snakes and lizards. Among the snakes the most important one is the Python, occurrence of which is more frequent in the Nicobar group of islands. Cobra is also reported in the islands.

Among the reptiles are Salt water Crocodiles (Estuarine), water monitors (varanus griseus) and Iguana.

The bird fauna of the islands is comparatively rich. More than 112 species of birds are reported from the islands. The most important are

Norcondom Hornbill (*Rhykiceros narcondami*)

Nicobar Meghapad (*Megapodius freycinet*)

Pigeon

Andaman Teal and

a number of species of kingfishers, terns, herons, woodpeckers, eagles, etc.

These islands are noted for Andaman Teals and they are mostly found in the interior freshwater areas.

Meghapod occurs in Nicobar islands and this species is found only in this place and nowhere else in the country.

Panthers and Elephants:

In 1950, a pair of male panthers was introduced on a trial basis to control the cheetal population, but nothing has been heard of them since.

All the elephants in these islands are tamed elephants from the mainland. The Andaman Forest Department maintains a herd of 95 elephants. In addition some private parties engaged in forest work in these islands own 22 elephants. A majority of these elephants has been purchased from Sonepore, a small town in Saran district of Bihar.

Wild life Protection :.

The 1972 Wild Life (Protection) Act extends in the first instance to these islands. Before that, there were no wild life laws in this Union Territory.

The salt water crocodile, Norcondom Hornbill and Nicobar Megapode are given protection by this act and they are listed in Schedule I.

Andaman wild pig and cheetal come under Big Game (Schedule III).

But nothing in this Act shall affect the hunting rights conferred on the scheduled Tribes of the Nicobar Islands.

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Orienteering

M. SREEDHARAN NAIR
1974 - 76 Course.

Contours are imaginary lines, but orienteering is a very real experience. At this close of my first year's study in S. F. R. C., if anybody asks which was my most interesting experience I would answer unhesitatingly: orienteering. It rings in your ears, in your head and heart and once you are out of it you feel on a par with Phantom, Tarzan or any similar superman. Even if you have escaped by the boundless mercy of Dame Luck once you are out of the jungle and in the world of realities, where you realise that all is well, you may describe it in terms of breath taking bravery.

Topslip, as you know, lies in the Anamalais, which is as the name implies, the abode of elephants. Elephants and gaur in the Anamalais know orienteering better than we do, knowing every nook and corner of the forest, while we were like Alice in Wonderland amidst trees and climbers. However, we had gained enough courage and strength in the practice orienteering.

A little about practice orienteering. It's motto obviously should be "Too many cooks spoil the broth". The practice is done in groups; our house consisted of seven members. As there was either only one way or no way at all we got confused. Each of us pointed to different directions. Cavalry

board came to our rescue. Our first station was a *Dalbergia latifolia* in a teak plantation. We had no time to think of why *Dalbergia* should be amidst teak and so got it easily. When we found our station so easily we all agreed for the first time that our group consisted of the bravest, most efficient and ablest ranger trainees specially treated for orienteering practice. We gained confidence.

Our next station was a leafless *Melia dubia*. All the others looked downcast but I smiled because every tree around was full of leaves, so to find out a leafless tree was not so difficult. Only, I didn't know *Melia dubia*. Here our group showed its dehiscent character and split along both sutures One consisted of myself, searching for a leafless tree, while the searched for *Melia dubia* on a river bed. I felt sorry for my struggling companions. Suddenly, I saw a leafless tree; cangratulating myself I rushed to the spot but there was no station. To my dismay I saw many more leafless trees, none bearing any station. I then heard my friends voice calling me. To my surprise they had located the tree. Again we praised ourselves, and with good cause this time for the *Melia dubia* tree was full of fresh green leaves. We were not defeated.

Our third station was very near to the second, a low- branched *Terminalia Paniculata* and we spotted it with ease. To me also it was very easy as on that hill there was only one tree — *Terminalia paniculata* as my friends say.

" Stop here ", I told my group, " Now there is only one station remaining. It shold be no problem to us. Before starting for the fourth siation I'll give you some practical —" I was cut off. " No, not from you ". " Listen friends," I continued, " the fourth station is a dam in the south—west direction. "I pointed southwest but they said it was north—west. " A dam you can see only across a river or a stream. Moreover it will be at a high altitude, so we can easily find it ". They agreed, and we started onfidently along the stream. We hardly cared for the obstacles or for the cracking sound of snapped bamboos, not until a strangely terrifying noise came to us from somewhere in front. When one of my companions exclaimed " Elephant !" we scattered quickly. When we stopped after a while, we realised we had been running. We looked to find the forest all around us. A sense of uneasy calmness prevailed, until broken

by the cry of a jungle bird and the chatter of monkeys. We had knots of fear and doubt. We noticed that the trees were covered with mosses and that it was very cool. I counted to find that our group was in tact. On the right down the valley and far away we saw the Parambikulam reservoir. We had reached Kerala. The thick evergreen shola remained a mystery. We did not know where we were. Where was the fourth station? Where was the dam? Down the hill waastream We approached it slowly thinking of the lone tusker that might be there Again we haurd the cracking of bamboos and understood that it. was a herd of elephants. Our hopes and confidence began to recede.

Fortunately we reached the State boundary and after some time saw a pipeline. Following this pipeline we reached the dam, well in the interior but very near. When we returned it was about 6. 30 p. m. We had gained success after 8½ hours. It was sweet for it was hard - earned.

The next day the real orienteering started. When one leads oneself it is a kingdom of one who is simultaneously both the king and his subjects. It was a misty day; I felt that the lorry taking us to the start was moving through clouds. Two gaur (bisons) greeted us straightaway, but that is the beginning of another story. Our group was finally adjudged the best in taking the maximum time for completing practice orienteering ! I am glad to say that Raghavendra Rao who finished first in the finals belonged to my group. Modesty almost prevents my mentioning that I finished third, may be because the others were slower !

Experience is indeed the best teacher. Orienteering is a really interesting and rewarding experience to those with vigour and vitality in mind and body. It gave us valuable experience and thrilling memories as also the confidence that is so essential in a Forester's life.

FLAMINGO

V. Sundararaju
1974—'76 Course.

Local names : **Tamil :** Punarai. Urian.
Hindi : Bog - hans, Rajhans.
Sinhalese : Siyak - Konaya.

Flamingo : The flamingo is a familiar and well - known representative of the family Phoenicorpteridae. There are two genera under this family Phoenicopterus and Phoeniconaias. There are six members belonging to the genus *Phoenicopterus*, namely *Phoenicopterus antiquorum*, *P. rosreus*, *P. rulier*, *P. euuopeans*, *P.* antiquds and *P. anersoni*. No one has yet been able to do justice to the beauty of the simultaneous unfolding of a thousand lovely crimson-and black pinions in brilliant sunlight. Once seen it can never be forgotten. The banks on which these birds congregate take on a rosy hue, so densely are they packed.

Distribution :- It occurs in the tropics and sub - tropics of both the hemispheres. It breeds in suitable places in southern Europe, North Africa and Central Asia (practically confined to the coast line). In Ceylon it is mainly a winter visitor and summer loiterer.

In India the flamingo is found more or less throughout. It is fairly common along most of the west coast and extends southwards to Ceylon where it is seen in large numbers on both the west and east coasts. It is common in certain parts of Tamil Nadu but in East Bengal is a rare bird. It occurs in the Sundarbans during winter. It is met with in smaller numbers in Orissa. The flamingo is fairly common near Tuticorin, and a large flock numbering thousands at a time is in its neighbourhood from October to March.

General description: The flamingo is about as large as a Painted Stork but is much taller because of the long legs and neck. The plumage is white, with a pink flush; the upper and under wing-coverts are rosepink to bright scarlet varynig in intensity; all the flightfeathers are black; the bill is pink, but black at the tip; the irides are pale yellow, the legs and feet are dull pink.

Both sexes look alike. Total length varies from 38" to 48"; wings from 14.3′ to 15.8"; tail from 5′5" to 6.8"; tarsus about 10.5" to 11-5"; bare tibia about 7′ and culmen 4.75" to 5.6".

Young birds are greyish, with the wing coverts mottled brown and with traces of pink here and there; bill is dark grey; legs and feet are grey or brown.

Field characters: This is a long-necked and long-legged rosy white stork-like bird, with a heavy pink bill turned down at an angle from about half its length. The flamingo lives in flocks of up to a thousand or more being highly gregarious and preferring brackish or salt water to fresh. Shyness seems to be their most prominent character. It can swim well and its long legs allow it to ride in water a yard deep. It prefers depths of a few inches in which it can reach the bottom with its peculiarly shaped weak. When the bird is preening its plumage, its long neck assumes a series of graceful cures. It sleeps standing on one leg, with the neck coiled round to bring the head between the shoulders. Flight is easy and sustained, with the neck and legs fully extended. When the birds of a flock fly evenly-spaced, in long lines or V-formation but more in the form of a unused ribbon, with their scarlet wing coverts contrasting with the white plumage and black flight feathers, they provide a magnificient spectacle. Both before rising and after alighting they run forward some steps in a most ungainly manner. The flamingo utters a variety of goose-like, gaggling mates when feeding, and loud,

honking cries on the wing; a solitary bird commonly utters with open beak a croaking sound. (The medley of sounds that is produced by a herd of feeding flamingoes is unforgettable, and must be heard to be believed. - Ed).

Food: It sifts the mud between its mandibles, straining out the small aquatic animals such as shell-fish, crustaceans, worms, insects and larvae and vegetable substances like seeds of marshy plants and organic ooze Their mode of feeding is remarkable. Bending down their long necks-between their legs, they invert their bills entirely, and use them as shovels in which they catch or collect their food. They obtain this by moving their heads backwards and forwards, or from side to side, and gently stirring up the mud.

Nidification: They breed fairly regularly except in seasons of scanty rainfall. Their nests which are built of mud whilst the earth is wet are made on ground slightly higher than the surrounding country, and covered with shallow water on all sides to a considerable distance from the spot, selected particulary to be free from danger from jackals, wolves. etc. Their nests are some twelve or eighteen inches high, with the ends flattened off and a shallow cavity made in their summits. The nests are made close together, in many cases several in a group, almost touching one another, but their proximity to each other depends greatly on the depth of the water in which they are placed. Sometime the nests will be found in close clusters in the shallower parts, even on muddy or sandy banks above water level. In Bonaire, the land on which the birds had made their nests was not of mud or sand, but of coral. The nests are quite hard so that one can stand on them.

The eggs, nearly invariably two in number, are long ovals, generally a good deal pointed at the ends. The two eggs are white, with a chalky outer layer. They vary in size very considerably, but the average is about 88.8 x 54.6 mm. The young ones are ctothed with down and are able to walk and run soon after hatching.

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Point Calimere - Abode of Black Buck

Vasant G. Kulkarni
1974—'76 Course

Geographical situation -

This is situated in Thiruttaraipundi Taluk in Thanjavur district of Tamil Nadu, around the Promomontory of point calimere (10°18' N 79°52' E and 15 M above MSL), on the shores of the Bay of Bengal. It is referred to as Calligicum in old records. This area was declared as a sanctuary on 18th June, 1967. It comprises the Kodikadu Reserved Forest (1,728.54 Ha.), the village forests (221.36 Ha.) and open strips of shores in the east (149.73 Ha.) and in the south (368.61 Ha). The sea forms the boundary to the east and in the south while a creek from salt swamps to the sea delimits the north and a village road the west.

Hindu prilgrims visit Pt. Calimere to worship the Ramarpadam at the northern end near the entrance to the sanctuary and to bathe in the sea during festivals. Nagur and Velanganni 50 and 60 km to the north along the coast are important pilgrimage centres for Muslims and Christians respectively. Vedaranyam, 9 km. away, is known for quality tobacco now and is remembered as the place where a protest against the salt tax was srarted in early thirties as part of the freedom struggle.

Management :

Until 1957 the Revenue Divisional Officer, Mannargudi was the ex-officio D. F. O. under the Conservator of Forests, Coimbatore circle. Blackbuck enjoyed full protection for sentimental and religious reasons. Jerdan (1857) records that in the mid-nineteenth century, European communities enjoyed running down these fleet-footed animals with grey hounds as an imitation of occidental fox hunting. Later on European officers who stayed in rest houses for Christmas didn't disturb the animals. But during the second World War, Army personnel were posted here at experimental radar stations As they had unquestionable access to the forests, they decimated blackbuck populations. From 1943, forest areas were felled annually to raise casuarina. From 1957 shooting was banned. Even today the mistaken belief persists that the meat of blackbuck cures leprosy.

As a sanctuary this area is under the administration of the Divisional Forests Officer, Thanjavur division and the Wild Life Warden, Madras. It constitutes a part of Kodikadu R. F.

Locality factors :-

This is an undulating sandy tract about 10-15 mt. above M. S. L. Climate is warm, tropical with max, temp. 37°C., Min. temp. 22° C., rainfall — 1418 mm., No. of rainy days 60-70. During summer water is available in the temple tank where wild animals particularly chital drink water during the night and also in artificial wells dug by the Forest department.

Flora :-

The forest type is the dry evergreen forest, The species are *Manilkara hexanrda, Maba buxifolia, Memecylon umbellatum, Pongamia pinnata, Vitis quadrangularis*, etc,

Fauna :-

Blackbuck (Antelope cervicarpa)

Chital (Axis axis)

Wild pigs (Susscrofa cristatus)

Jackals (Canis aureus)

Hares (Lepus nigricollis)

Jungle cat (Felis chaus) and

Feral ponies, etc.

The sanctuary is remarkable for the birds it receives as migrants (water birds). The most spectacular is the flamingo which arrives here in flocks of 20,000 to 30,000. It is a native of Kutch and breeds in marshy areas.

The blackbuck is an ungulate ruminant found exclusively in India. Also called the Indian Antelope, it is found in plain forests all over India in punjab, Haryana, Gujarat, Rajasthan, Karnataka (Bijapur and Ranebennur) and on the Deccan plateau except in moist regions. It is normally not found in coastal areas. Point calimere is a notable exception.

The blackbuck has all the characteristics of true antelopes-horns with a outer hollow portion and an inner bony core, horns that are permanent and unbranched, and no incisors or nines in the upper jaw.

The black buck is more a grazer than a browser. Average weight 40 Kg. and height of blackbuck (at shoulder) - 32″. In the south, lenght of a good pair of horns is 50 cm. and in the north about 60 cm. Females and young ones are light brown in colour and white on the belly, undersurface of the neck and inside of the legs.

Males that are one year old are called ″ Yearlings ″. They have horns without a spiral. In the second year a large open spiral is developed and in third year the full number of spiral twists develop.

The adult buck is usually dark in colour; when fully grown it is black in the north and blackish brown in the south. In summer the coat is lighter and becomes darker after that.

Habits :- It is an animal of open habitat found gregariously in herds of 20-30 feeding on grass, herbs and various cultivated crops. It grazes during early mornings and evening and takes rest at noon. The sense of sight is keen. The blackbuck travels fast at speeds of 50 to 60 km /hour, moving in a series of leaps and bounds. A peculiarity is that the leader is a vigilant old female. Rutting season is in Feb-March and young ones are produced throughout the year.

A peculiar habit is of depositing their faeces at specific location before actual defecation at the dung heaps. The buck sniffs, paws with its forelegs, stands keeping fore quarters still, raises its head, spreads its hindquarters and urinates. This takes an average of 3. 42 mins. The espacement of dung varies from 4.4m. to 3.3. M At Kanha, Schaller (64) had observed that while grazing the blackbuck frequently raised its head (10 seconds head raising out of 71 seconds of grazing) and that unlike spotted deer, grazing was continuous. The DFO (Surveg) observed that in 25.2 black buck grazing hours the total head raising 8081 was seconds, i. e. ratio of head raising to grazing is 1: 11 whereas in Schallers, the ratio is 1:7. This may be an adaptation against potential danger.

Census in point calimere.

1) In May, 1969 by Daniel and Subbaiah - Total - 750.

2) In May, 1971 by T. N. Forestry School, Vaigai Dam. - Total - 970.
(as compiled from records of all 16 groups.)

3) By some RFO trainees of SFRC on 18-7-1975 - 145 x 10 - Total 1450.
(counted 10% of the area and multiplied.)

4) Records of Forest Dept. - 1500 in 1975.

Reference :

Indian Forester - August, 75.

National Parks And Their Significance

N. Vara Prasada Rao,
1973 — '75.

The concept of a National Park was first conceived in U. S. A. in the year 1870. The Yellowstone National Park, U. S. A. established in 1872 was the first National Park of the world. This was followed by the formation of a number of national parks in Africa and Europe. The creation of these parks moved some of our naturalists and it was in 1935 that Lord Malcom Hailey, the then Governor of United Provinces (now Uttar Pradesh) established a National Park named the Hailey National Park (now Corbett National Park). In recent decades such National Parks have attained importance because of their virtues as protected homes for wild animals and as an important national asset of revenue.

I Changing values of man with regard to wild life.

It is true that in cultural evolution human values are not static in content and emphasis. The historic perspective of man's relationship with wild animals is that - Man used wild animals for food for over two million years. He has been involved in the control of noxious wild animals for over ten thousand years. He has pursued wild animals for sport for perhaps ten thousand years.

Man now attaches a strong aesthetic value to wild life especially in the last 100 years.

II. Definition of national park :

There have been many definitions of the term ' National Park ' but none of them has been universally agreed upon. It connotes different aspects in different countries. In America these are mostly places of outstanding scenic beauty, in U. K. sites of historical and archeological importance and in other European countries they are mostly faunal reserves.

In India, the Indian Board of Wild Life defines National Park as ' An area dedicated by statute for all time to conserve scenery, natural and historical objects of national significance and wild life and where provision is made for the enjoyment of the same by the public. '

Our National Parks are and have to be mainly faunal in character, as the problem of wild life protection is one of the basic needs of the hour in the country.

III Need and purpose of a National park :

Population explosion has resulted in gradual destruction of natural environment-floral and faunal resources of the land. But now there has been an awakening that these natural resources should be conserved for the enjoyment of future generations and for aesthetic, scientific and enconomic purposes. As ever where there is industrial development, people are looking towards the wilderness of the forests for rest and recreation to make life happy and healthy.

So the purpose of a National park can be stated as 'to conserve the scenery and the natural and historic objects and wild life therein and to provide for the enjoyment of the same, in such a manner and by such means, as will leave them unimpaired, for the enjoyment of future generations'.

IV. **Management of National Parks:**

The management of National Parks should aim at achieving basic objectives. These objectives vary with the resource involved and the purpose for which it is conserved. Thus the management of a park with places of scenic beauty needs appropriate preventive measures and the regulation of its non-consumptive use, whereas places kept for conservation of wild life need stringent legal protection combined with careful manipulation of the environment and of the population.

But the basic objective that underlies the management of any National Park is 'to allow nature without interference to take its own course, so that it will establish a natural balance and bear a pristine look.'

In India the ideal management of a national park includes the following aspects.

1. **Protection** : A park has to be a viable unit both physically and ecologically. The area of the park should be big enough not only to withstand the outside pressures but to provide the necessary degree of seclusion and unapproachability to the various biotic factors. Ecologically it should be self sufficient to provide for the year-round needs of all the species of wild life found in it.

Proper management of a park envisages sheltering it from all biotic disturbances, chiefly keeping out grazing by domestic cattle and protection against fire and poachers.

If the park is to remain unimpaired it would seem appropriate to place sensible limits on its development, to make preservation the first consideration in choosing any facilities. It has been shown that even a few humans (research workers) can upset the biotic balance.

No operations that bring about a change in the naturalness of the park should be allowed in the park except fire protection where the fear exists.

2. **Tourism** : A national park should be managed in such a way that it should be able to cater to the different needs of different people. Questioning of visitors shows that 9 out of 10 were visiting the park for such purposes as open air exercise and enjoying the scenery. So facilities for this should be given importance.

As a national park plays an important role in national income due facilities and amenities for the visitors should be given. Above all there should be an easy approach to the park from all corners of the country.

3. **Administration** :

Management of a National Park needs a band of dedicated and knowledgeable administrators and scientific personnel. There should be careful manipulation of habitat, if necessary, by providing salt licks, grasses, water holes, etc.

For proper administration the area of the park should be divided into various zones viz., Tourism Zone, Buffer zone, Sanctum sanctorum etc. and managed accordingly.

For proper running of the administration, there should be adequate funds allotted for this purpose.

V. Role of National Parks :

The role of a National Park may be manifold.

1. It creates conditions for the restoration and preservation of the natural environment and thereby helps in survival and rehabilitation of vanishing flora and fauna.

2. It provides a place for enjoyment and recreation for the general public. This is of immense value nowadays.

3. It acts as an outdoor laboratory for ecological studies and field Investigations.

4. National Parks promote tourism in a country. In Kenya wildlife tourism is the second biggest source of revenue to the country.

5. National parks support indirectly many ancillary industries like those of photographic materials, camping and boating materials, etc.

6. A National Park in a thickly populated country like India can offer employment and business to the local people.

7. Where the ecological balance is maintained, surplus stock of faunal resources can be disposed of at very good prices.

8. Finally National Parks earn income in the form of fees, rents, etc. The Parks attract many foreign visitors, thus earning foreign exchange too.

VI. Development of National Parks in India :

India with it varied nature of faunal and floral resources and climatic conditions needs more Parks. But India's economy is largely based on agriculture. So the impact of national parks is of little significance.

Fortunately the Indian Board of Wild Life, 1952 made it one of its first tasks to recommend many important game reserves to be converted into National Parks. At present there are 7 National Parks in India, the 8th being in the proposal stage. They are the National Parks of Corbett (U.P.), Kanha (M. P.), Taroba and Borivili (Maharashtra), Hazaribagh and Palamau (Bihar) and Simplipal (Orissa). The proposal is for Kaziranga in Assam.

VII. Conclusion :

National Parks will remain in perpetuity as symbols of foresight and our future generations would be grateful to us for preserving nature's heritage for their enjoyment. India with its vast scenic beauty and varied wild life has to establish many more national parks because a well - managed National Park may serve many useful purposes to the people and to the country.

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2. Wild Life Management by P. D. Stracey, in India.
3. I. U. C. N. Special Issue of Indian Forester Nov. 1969.
4. The Wild Life of India by E. P. Gee.
5. Indian Forester February 1970.

May I Introduce........

B. R. Vijayakumar
1973 —' 75 Course

1. PARMAL BOSE - A very punctual man. A sure indicator that nobody else is left behind.
2. RAM NARAYAN, D. - During exams he persuades the one sitting in front of him to study
3. VARAPRASAD, K. - " I will take the wickets, but who will get the runs "?
4. KANGARALKAR, G. L. - He thinks hockey is one man's game.
5. BHALANI, D. L - One can't help remembering Gandhiji when he is around.
6. MAJITHIA, P. G. - He likes to call a spade a spade.
7. PATANI, S. K. - Has he really called for tenders for the sale of 'Richmond Cup'?
8. PATEL, B. N. - He always has a comb in his back pocket.
9. JOSHI, D. G. - A very religious man. He even drinks brandy with a spoon.
10. GURUBASAVARAJ, K. B. - A strict vegetarian but very anxious about the taste of non-veg. dishes.

11. HALAGATTI, V. M. - One may wonder whether he is playing with the tennis raquet or vice versa.

12 MAHALINGAPPA, B. - It is a wounder he doesn't get diabetes after consuming so much of sweets.

13. NAIK, K. S. - The best policy is to remain unknown.

14. SADASHIVA, P. - After struggling hard with an English novel he seeks refuge in a Kannada novel.

15. ABDUL GAFOOR, M. - When he plays football, the other players get confused.

16. MURALI, M. - Salvation at last !! He got a role suiting his temperament on Assn. Day.

17. DAI P. JOHN - The best non - playing basket ball player.

18. SIRIPHONG, O. S. - The best cook in S. F. R. C.

19. ADKAR, R. K. - An authority on old Hindi music. Could he but sing!

20. ARSHAD HUSSAIN, S. - Life could be miserable for him without a bed and a novel.

21. DHONGDE, R. S. - He can set fire to a ship and be the first to get out.

22. DUBHELE, B. L. - Even if he loses a bet, he will be there to enjoy half of it.

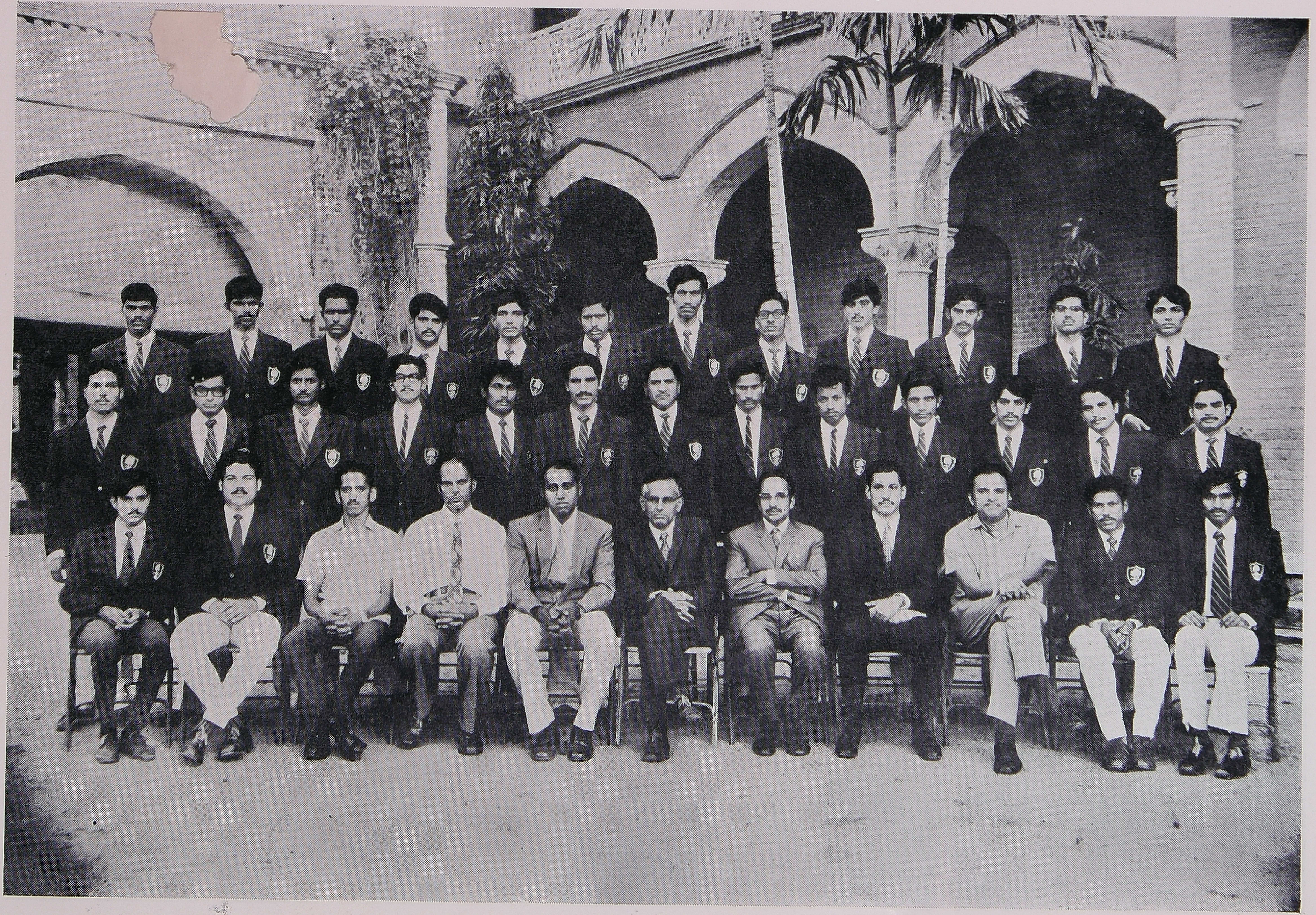
23. SHAIKH AZMATULLAH, A. - Had he a chance he would have convinced Albert Einstein that E mc,.

24. ATTANAYAKE, M.P. - If you are suffering from boredom pay him a visit.

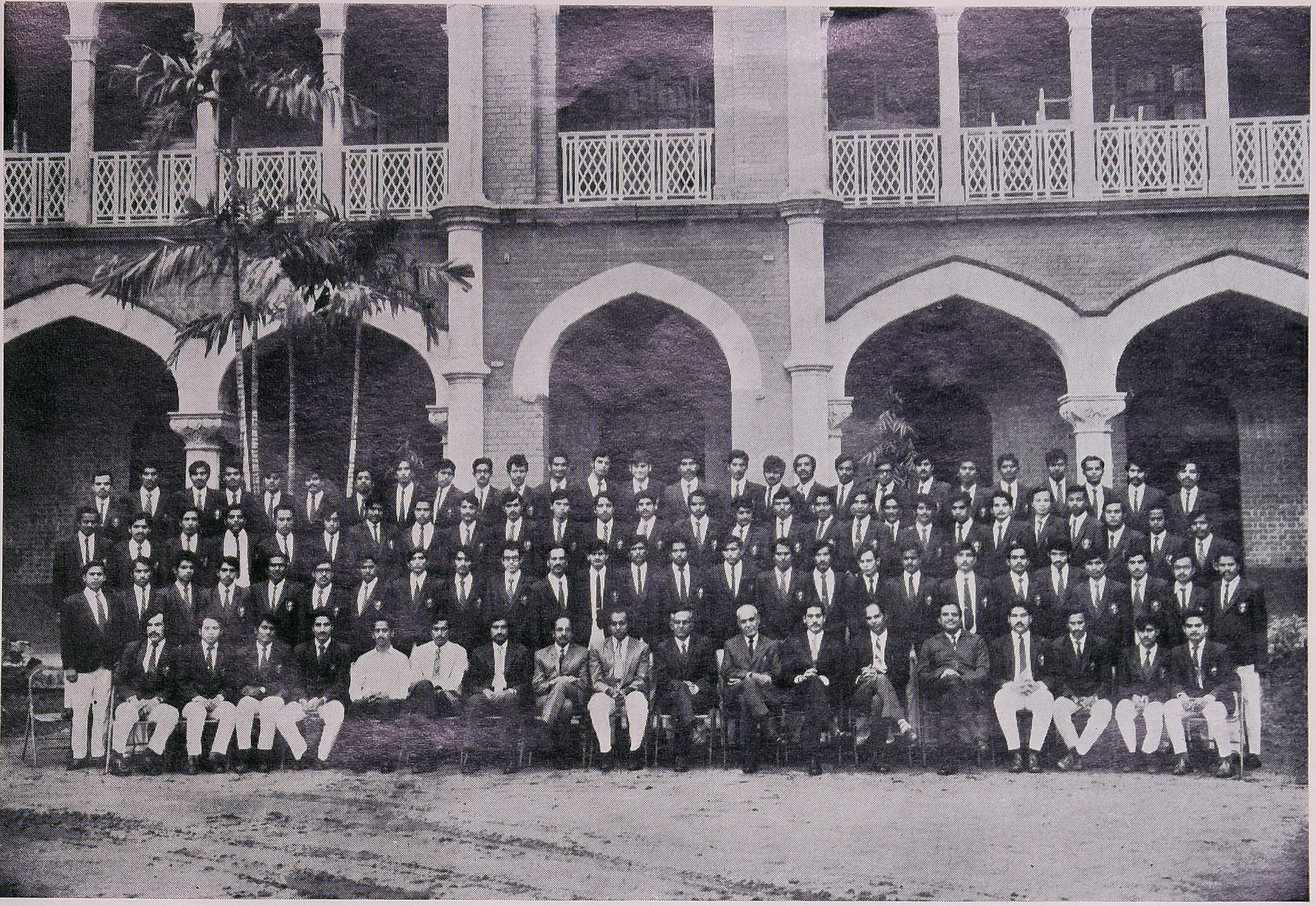
25. AMBALATHARASAN, D. N. - Don't be carriedaway by his physique. He can be managed, all right.

26. AYYACHAMY, R. - He once said "married life is terrible". Was it for him or his spouse?

27. EHIYA, A. M. - After every sentence in English, he pants as if he has climbed Mt. Everest.



S. F. R. C. ASSOCIATION 1975 OFFICE BEARERS



S. F. R. C. 1973—'75 RANGERS' COURSE

28. MIR ZIAUDDIN - If you haven't got a hobby yet, start watching him run.

29. CHATTERJEE, T.B. - A walking encyclopaedia but wrongly edited.

30. GEORGE JACOB - A double - edged sword.

31. RAMAMOHAN, S. - When he talks others wonder whether people in A. P. are that deaf.

32 VARA PRASADA RAO, N. - But for him our college library would have been utterly unused.

33. KHANOLKAR, S. K. - Shake!! Shake!!

34. KORVADIA, V. T. - President of an important association in SFRC.

35. PATEL, C. R. - Is he really a ex-military man?

36. RAVAL, P. P. - He looks best when angry.

37. SATA, P. H. - He believes in the maximum utilization of clothes and minimum utilization of dhobi.

38. CHODASAMA, V. H. - A pack of cards, a pack of fags and what more can one want?

39. MARIGOWDA, B. K. - If he looks like Omar Sharif it is none of the latters fault.

40. PADMANABHA, K. M. - He hops while he runs.

41. SHIVANNA - The fittest for the forests.

42. SHIVA PUTTE GOWDA - Who says response to stimuli is a sign of life?

43. SURYACHARI - He still believes that bearing is a measure of distance.

44, MOHAMMAD ALI, P. - Even B & H's classification seems interesting coming from him!

45. THAMPI, K. B. - He has abnormally long hands, and makes the best use of them.

46. VIJAYA KUMAR, B. R. - (He has answered a burning question in the minds of Kerala's learned forest historans: Connolly did have a daughter and she had pimples! - Ed.)

47. MOUNDA, B P. - Diversity of individual characters is worldwide.

48. JOSHI, P. V. - Give him any paper other than white and he will paste it in his room.

49. MOHOLKAR, P. C. - A moderately strong wind can turn his veritcality into horizontality.

50. RAMANAND, S. P. - He is sick of his life in SFRC.

51. TANDEL, S. G. - Charles Darwin was right after all !!

52. MALWADKAR, A. G. - Great indeed !! He managed to break his leg after running SFRC. marathon.

53. CHAUDHURI, T. K. - Height of hope : hoping to see him without a moustache.

54. DISSANAYAKE, L. A. - If palmistry was a subject in SFRC he would have won the Gold medal for it.

55. BALAN, V. - Let us hope that we will feel his presence at least in the convocation hall.

56. MOHD. IQBAL BASHA, M. - Barking dogs seldom bite.

57. SUKUMARAN, C. - A living exception to all we learnt about height and girth increment.

58. VELLAICHAMY, A. - No wonder people call him "Bellychamy".

59. ABEDY, S. E. - A poor rich man.

60. CHANDRAPANDIAN, V. - He would have us believe that he is directly going to be appointed as an ACF after the ranger's course.

61. PRABHAKAR RAO, K. - He pulls the string and the puppets dance.

62. ARAUJO, F. X. - They say that he plays football hearing the sound of the ball.

63. BALEJA, S. B. - Our Hon. Sports Sec. who never plays any game.

64. PATEL, P. I. - His smile is a mile long.

65. DHARMAPAL, D. S. - A gentleman.

66. DYAVEGOWDA, K. M. - He is always all praise for all.

67. NAYAZ AHAMED, D. N. - As him the meaning of P. T. The inevitable answer will be - 'Walking'.

68. KUNHABDULLA . He 'orienteered' his way through this 'marathon' course.

69. BAISANE, D. B. - Slow and steady won't always win the race.

70. ROKDE, C. B. - The secret of his health is that he sprints everyday at 12.45 from the class to the Mess,

71. NATU, J. V. - Still a mystery.

72. EKANAYAKE, M. B. - He complains that he has lost his stamina after coming to SFRC.

73. MOHAN, V. - A bosom friend.

74. BHATT, P. M. - A foreigner from Karnataka.

75. CHANDRAMOULI, B. - While running he will be always searching for something on the ground.

76. CHODANKER, D. N. - He is very selective in his drama roles.

77. PILLAI, C. V. - Tell him Gandhiji was an Indian, he will have some doubt about it.

78. PATEL, M. N. - He will always have a 'Panama' in his pocket to offer somebody.

79. OBEDULLA KHAN, H. S. - Wholesale consumer of cosmetics.

80 PUTTA RAJU - Well really! What about him?

81. SYED GAFFAR, C. Z. - Allergy! Allergy!! Allergy!!! Allergy towards water also? (Not drinking water, of course).

82. RAMACHANDRAN, P. V. - An artiste indeed! ! He wrote his own poem in the Soil Conservation paper.

83. DIGHE, U. V. - He is very scientific in his approach towards anything and ' everything '.

84. DESHMUKH, V. M. - Editor of ' Sunday Breakfast '.

85. MANICKAVASAGAM, T. - Beware electricians ! Beware mike operators!! He is going to sing.

86. SELVARAJU, C. - A helpless man who has been continuously postponing his marriage.

87. SOMASUNDARAM, A. - Fit to be a wrestler, but plays only ball badminton.

88. SYED ZIAUDDIN, I. - A VIP who always has guests in the hostel.

Note on the Botanical Garden of The Southern Forest Rangers College, Coimbatore.

A. M. Mahmood Husain and
K. N. Subramanian
Forest Research Centre.
Coimbatore.

INTRODUCTION

The aims of this botanical garden are to serve as

1. means of introducing plants of botanical, economic, forestry and horticultural interests.

2. a centre for the dissemination of scientific, technical and popular information about plants and their culture.

3. valuable adjunct or supplement to nature study and botanical work particularly to the students of forest colleges, serving forest and research officers and students of botany in schools and colleges.

4. a centre of investigation for pure and applied botany.

5. a place of beauty to provide a healthy recreation centre.

AREA AND GENERAL LAY OUT -

The botanical garden is located in a 3.7. hectare plot in the north eastern part of the estate and started functioning in January 1971. As is common to any new venture we had to face some set backs due to the hostile nature of black cotton soil and the underlying canker pan, particularly to the exotic species and also the problem of water for irrigation. The problem of soil was solved by making 1m. cube pits for trees and 1' cube pits for shrubs etc and replacing the soil with imported loamy forest soil or with an equal mixture of ored earth, river sand and tank silt. This has given an initial boots for almost all the species to establish and their growth now is very satisfactory. The deep bore well located in the garden site partially served as a perennial source of water supply. The area was wire fenced and a beautiful live fence with Bougainvillea (Mary Palmer) variety was developed The planting pattern inside the garden is as follows. Tall growing trees towards the perifery followed by a row of medium sized trees and individual plots for palmetum, ornamental plants, aromatic and medicinal plants, systematic botany garden, gymnosperms, grasses and bamboos, rose garden and a central lawn. A green house (Plant house) for growing humid loving plants and a unique glass house for carrying out very important experimental work in vegetative propogation are also located in the garden.

The following are some of the intersting introductions in the various plots of the garden.

TALL AND MEDIUM SIZED TREES

Jacaranda mimosaefolia, Melia azedarach, Trewia polycarpa, Kigelia pinnata, Berrya ammonilla, Delonix elata, Putranjiva roxburghi, Emblica officinalis, Madhuca indica, Sapindus emarginatus, Erythrina stricta, Couroupita guaianensis, Casuarina equisetifolia, Erythrina indica. Albizia procera, Acacia, robusta, Erythrina suberosa, Holarrhena antidysenterica, Gmelina arborea, Helicteres isora, Terminalia bellerica, Milletia ovalifolia, Acacia auriculaeformis, Murraya paniculata, Balanites aegyptiaca, Butea monosperma, Santalum album, Feronia elephantum, Ailanthus triphysa, Ailanthus excelsa, Trema orientalis, Calophyllum inophyllum Swietecia mahagoni, Acacia catenhu, Flacourtia indica, Terminalia arjuna, Tectona grandis, Dalbergia latifolia, Dalbergia sissoo, Albizia lebbeck, Albizia amara, Pterocarpus santalinus, Diospyros melanoxylon, Acacia lenticularis, Acacia, Caesia

Adenanthera pavonina, Samanea saman, Pterocarpus marsupium, Peltophorum vogelianum, Peltophorum pterocarpum, Cetis tetrandra, Pongamia pinnata, Chukrasia tabularis and Alstonia scholaris.

Tne ornamental and aromatic plants introduced are *Saraca indica Oncoba spinosa, Tamarix gallica, Spathodea campanulata, Indigofera teysmanica Bauhina variegata, Cestrum noctornum, Tecoma argentia, Tecoma stans, Plumeria rubra, Tabebuia rosea, Millingtonia hortensis, Derris robusta, Guaiacum offlcinale, Bursera penicillata, Oncoba spinosa, Caesalpinia crista, Lagerstroemia indica, Spathodea nilotica, Ravenala madagascarensis. Cassia fstula. Jatrapha glandulifera, Callistemon viminalis, Hamelia patens* and different varities of *Bougainvillea, Jasminums, Hibiscus, Cannas, Crotons* and, *Ornamental* annuals.

IMPORTANT FRUIT TREES

Punica granatum, Anona squamosa, Morus alba, Malpighia glabra, Psidium guajava, Syzygium sp., Cicca indica,Averrhoa bilimbi, Zizyphus mauritiana, Artocarpus heterophyllus and Anacardium occidentale.

GYMNOSPERMS AND FERNS

Cycas circinalis, Cycas beddomei, Cupressus torulosa, Frenela rhomboidea Araucaria cunninghamii. Taxodium mucronatum, and *Angiopteris evecta.*

MEDICINAL PLANTS

Rauvolfia serpentina, Rauvolfla tetraphylla, Tinospora cordifolia, Plumbago zeylanica, Mentha piperita, Mentha arvensis, Hyoscyamus niger, Plantago ovata, Coleus amboinicus, Anisomeles malabarica, Catharanthus roseus, Adhatoda vasica, Centella asiatica, Crotalaria laburnifolia, Asparagus racemosa, Withania somnifera, Solanum torvum Strychnos nuxvomica, Solanum surattense, Aerva lanata, Vitex negundo, Curcuma aromatica, Phyllanthus, fraternus, Tylophor indica, Datura metel, Foeniculum vulgare, Piper longum, Alangium salvifolium, Costus speciosus and *Terminalia chebula.*

BAMBOOS AND GRASSES

Bambusa vulgaris (*Yellow or golden bamboo*) *Dendrocalamus strictus Cymbopogon winterianus*, *Cymbopogon martinii* and *Spinifex littoreus.*

Oreodoxa regia, *Elaeis guineensis*, *Cocos nucifera* (Tall X Dwarf hybrid), *Calamus* sp., *Corypha umbraculifera*, and *Lodoicea schellarum.*

ROSES

52 varieties of roses were introduced and most of them are doing well.

GREEN HOUSE :

A green house of size 40 ' x 20 ' with an arched weld mesh roof over which herbaceous climber of the family Convolvulaceae are grown is situated in the north western corner of the garden. A sunken water tank of size 6 ' x 4 ' x4 ' is constructed in the centre of the green house which gives a cool humid atmosphere inside. 10 species of orchids including *Vanilla planifolia* (from which vanilla essence is extracted), a number of aroids, rare ferns, Bignonias, commelinas etc, are grown here.

GLASS HOUSE :

A unique glass house the side walls and the roof of which are covered with the indigenously manufactured 'tufflite' E grade fibre glass sheets (instead of the conventional glass) is an invaluable addition and a centre of attraction of the garden. This is also fitted with mist propogation equipment which consists of a number of mist nozzles, a two stage pressure pump with a one horse power motor and an electronic timer to control the mist. 2 desert coolers on one side and two exhauts fans on the opposite side are provided to give a continuous cool draught of air inside. A thermohygrograph which automatically records the humidity and temperature is also provided. The main purpose of this glass house is to raise large number of planting material of important forest

trees which are either poor in natural regeneration or difficult to raise by normal vegetative means. Experiments conducted in raising rooted cuttings of a number of woody species which are difficult to raise under Coimbatore conditions were suceessfully raised here and are planted in the garden. Some other very important experiments on Teak hitherto not attempted anywhere in the country are being tried with very encouraging results in the Glass House.

This is a continuing reserach project of the Botany Branch of the Forest Research Centre, and it is propsed to add more and more interesting and usefu species to the garden.

Leaves From the College Diary

1974 - '75

28-10-74 Celebrated Wild Life Day. Shri T. B. Jambulingam, I. F. S., Conservator of Forests, presided. A programme of variety entertainment was presented. Mrs. Kondas distributed the prizes.

29-10-74 Officers of the college and Research Centre assembled at tea to bid farewell to students of the 1972-74 course.

30-10-74 The Annual Convocation was held to mark the successful completion of the 1972-74 course. Hon Shri Prabhudas Patel, Deputy Minister for Agriculture, Government of India, presided.

1-11-74 The 1974-76 course commenced. Students of the 1973-'75 course commenced their vacation.

1-12-74 Staff and students cricket match. Shri Harikairhnan's XI won the match. Commencement of classes for Seniors (1973-75 course) after vacation.

19-12-74	Election of office bearers of S. F. R. C. students Association for 1975.
21-12-74	The Annual Marathon Race was held. K. V. Kunhabdulla of 73-75 course from Kerala won.
23-12-74	Lost volleyball match against G. C. T.
28-12-74	Won football match against S. F. S. trainees, Dehradun. Elocution contest with S. F. S. students on forestry subjects.
29-12-74	Variety entertainment programmes by S. F. S, and S. F. R. C. srudents.
1-1-75	Won second division league cricket match against Rangers' cricket club.
12-1-75	Discussion on forestrv subjects with I. F. S. students.
13-1-75	Won volleyball match against I. F. S. students. Entertainment programme by I. F. S. and S. F. R. C. students.
15-1-75	Mr. P. N. Doraiswamy relieved from college.
18-1-75	Seniors left on their first tour. Camps - Karwar, Goa, Dandeli, Makut, Nilambur.
19-1-75	Juniors left on their first tour. Camps - Sadivayal, Bennari and Topslip.
7-2-75	Juniors returned from tour.
9-2-75	Seniors returned from tour.

16-2-75	League cricket match against Pollachi cricket club - Result - Draw.
20-2-75	Played P. Kalaimani Memorial football tournament match against P. S. G. Arts and won.
21-2-75	Lost 2nd match against Agriculture college.
23-2-75	Lost a second division cricket match against Friends Cricket Club.
1-3-75	Annual Sports Day. Comm. R. N. Gulati, I. N. S. Agrani presided. Mrs. Gulati distributed the prizes. S. K. Patani of Gujarat (1973-'75 course) won the individual championship.
2-3-75	Won league cricket match against Coimbatore Cotton Mills by 6 wickets Seniors left for tour. Camps at Allapalli, Kanhal, Baroda, Waghai, Boriwili.
4-3-75	Juniors left on second tour. Camps at Madurai, Nagercoil, Ariankavu, Thekkady, Kodaikanal.
6-3-75	Won voleyball match against Allapalli Recreation Club at Allapalli.
26-3-75	Both the classes returned from tour.
13-4-75	Played a friendly cricket match against Anamalai cricket club at Valparai and lost narrowly.
19-4-75	Juniors left for Madras on their 3rd tour. Camps :- Madras, Visakhapatnam, Paderu, Narsipatnam, Maredumilli, Rajamundri, Hyderabad.
21-4-75	Seniors left on their third tour for Ooty. Camps :- Ooty, Kargudi and Bandipur.

6-5-75	Juniors returned from third tour and commenced their vacation.
9-5-75	Seniors returned from tour and commenced their vacation.
28-5-75	Recommencement of Junior classes.
1-6-75	Recommencement of Senior classes.
14-6-75	Inter-divisional cricket match played between Senior 'A' Division and Junior IInd batch. Senior A Division won the match easily. Cricket match between Senior B Division and Junior IIIrd Batch. Senior B Division won the match.
15-6-75	Inter-divisional cricket match between Senior 'C' Division and Junior Ist batch. Senior 'C' Division won the match.
22-6-75	Inter-divisional cricket match between Senior A Division and Senior B Division and match resulted in draw.
2-7-75 to 6-7-75	Final examinations for Seniors in General protection, Accounts and procedure, Wildlife Management and Utilisation and for Juniors and in Soil Science, Soil Conservation, Geology and Physiography Engineering.
7-7-75	Seniors left for Bangalore on tour. Camp at Madras Engineer Group and Centre of Bangalore for Weapon training and field engineering.
8-7-75	Juniors left for 4th tour. Camps at Neyveli, Point Calimere, Arimalam, Trichy, Ramnad, Rameswaram.
25-7-75	Juniors returned from 4th tour.
30-7-75	Seniors returned from Bangalore tour.

3-8-75	Won a league cricket match against Tatabad by two wickets. This was the first match of the new season.
7-8-75	Lost a friendly hockey match against P. S. G. Tech. College.
8-8-75	Lost a friendly hockey match against Agricultural University,
9-8-75	Played a friendly hockey match with P. S. G. Polytech. college. Match resulted in a draw.
12-8-75	Played an inter-collegiate hockey match with P. S. G. Polytechnie and lost.
14-8-75	Played an inter-collegiate cricket match against Govt. Polytechnic and won by 8 wickets.
15-8-75	Celebrated Independence Day. A friendly match was played between the Principal's XI and Housetutor's XI. Officers and students participated liberally and there was much good humour. Housetutor's XI won the match.
16-8-75	Lost inter-collegiate cricket match against P, S, G, Tech. college.
17-8-75	Won a league cricket match against Y. D. C. C. by 152 runs.
22-8-75	In C. I. C. A. A. meet held on Maruthi College ground Forest College got first prize in marchpast. S. K. Patani (Gujarat) came first in High jump ; second in discusthrow and third in Javelin throw While Shreedharan Nair came second in polevault and K. B. Thampi third in hop step and Jump. Korwadia came 4th in discus as well as in hammer throw.
24-8-75	Played a league cricket match against Coimbatore Cotton Mills. Match drawh.
28-8-75	Annual Quiz competition. There was much competitive rivalry this time.
31-8-75	Lost league cricket match against Pollachi Cricket club.

2-9-75 Annual elocution competition. K. C. Pillai stood first. H. K. Srinivasan second and Kesai Marama third.

4-9-75 Musical competition.

Vocal : First prize to C. H. Pandya

Second prize to Vijayakumar.

Instrumental:-

Shri C. H. Pandya won the first prize

while F. X. Araujo and Ramanand got the second prize.

6-9-75 Lost league cricket match against Bimetal Cricket club narrowly.

12-9-75 Celebrated Association Day. Mr. Lakshmikanthan Bharathi, Collector of Coimbatore presided. A programme of variety entertainment was presented. Mrs. Mahmood Husain distributed the prizes.

14-9-75 to 25-9-75 Juniors commenced Survey practical examination camp at Walayar.

22-9-75 Inter - Divisional cricket match between Senior 'A' and Senior 'B' Division. 'A' Division won the match.

24-9-75 Inter - Divisional final cricket mach between Senior A Division an 'C' Division. 'A' Division won the match became the champions.

28-9-75 Lost league cricket match against C.I.T. narrowty.

4-10-75 Examination in first Aid for Seniors.

6-10-75 Lost inter collegiate foot ball match against P. S. G. Tech.

9-10-75 } 18-10-75 } Final examination for Seniors.

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Alumni Corner

This column is compiled on the basis of information obtained about alumni and personal contacts established with some of them on our tours. We have tried to be uptodate as far as possible. However, it is not claimed to be an exhaustive narrative for there is much that we have not been able to ascertain. We would be delighted to receive information about our alumni. We specially request all alumni who read this to give the latest about themselves and their colleagues. The Editor, who has compiled this column, gratefully acknowledges the help of Mr. P. K. zachariah, Assistant Instructor, for providing much of the information about our alumni given below.

1937—39 : It gives us pride and pleasure to have discovered that Mr. Md. Ibrahim Ali, Minister for forests. Andhra Pradesh, was a member of this course. It is particularly heartwarming to note that this distinguished alumnus remembers his "alma mater" with affection. He met one of the junior batches on their tour in A. P. at Rajahmundry and Maredumilli and took time off to share their breakfast, making it a memorable occasion. R. Nilakantan Nair I. F. S. is the Managing Director of Forest Industries of Travancore, Always and Travancore Plywoods at Punalur. S. Ramakrishnan, I. F. S. retired as Conservator and is at Trivandrum.

1945—' 47 : Tharakaraman, who retired as D. F. O. and has settled at Coimbatore, attended our Sports Day and participated in the old boys ' event to the apreciation of all.

1946-48 : P. N. Adiyodi, I. F. S , who is D. F. O. at Palghat took personal interest in making the recent survey practical exam. camp a success. We are grateful to him.

1947—'49 : N. Suryanarayana met us at Narsipatnam as Divisional Forest Officer, Bamboo plantations and was kind enough to accompany the class to the bamboo and cashew plantations. We vividly remember the journey in his jeep and would not be surprised to hear him say that the standard of student's toughness has gone down, because of the undue interest they took in consuming cashew apples..

1948—' 50 : V. K. Ramachandran continues as D. F. O. at Nilambur (no small achievement !) and was his usual unassuming self inaccompanping the senior class on tour in January. It was a pleasure to meet V. R. Krishnan Nair (at Trivandrum. Even for an existaff member he has deep affection for the college. He is now Manager, Kerala Forest Development Corporation at Trivandrum. K. V. Subramaniam has descended to Coimbatore as Soil Conservation Officer. Perhaps he is able to ascend to his customary montane heights on tour.

1949—' 51 : Somayajulu met us at Vishakapatnam and was with the class for a day, but the bus he had arranged stayed with us for much longer. It must be long since a vehicle gave us occasion to remember a local officer so often and with so much feeling! James Paul, then D. F. O. at vizag, also met one of the junior classes. M Suryanarayana, champion athlete of his time, whose record still endures, was at Minimulluru in May as Estate Manager. We remember him for his competently delivered talk on coffee cultivation and his hospitalityi P. Ranga Rao, D. F. O. Coffee curing centre at Narsipatnam, also met us and handled the classes. HRS (Rajagopala Shetty to the uninitiated) is going strong at Salem and obviously retains his wonted mastery over Accounts and Procedure. C. R. Thirumurthy, also formerly Asst. Instructor here, is now again at Coimbatore, having been promoted recently.

1950—' 52 : Thamburaj was in Rubber when we went there in March. He was literally taken by surprise to find us confronting him one fine morning

in his house. The customary "communication gap" (that we have yet to learn to accept as a part of ıoutine) had resulted in his being unaware of our programme. It was a pleasure to meet Rangamani on our excursion to Jambalmedu and to learn of his subsequent promotion.

1951—'53: TCR is very much with us, functioning (to borrow from the jargon of the auto industry) smoothly on all cylinders. Durvesh Moideen, now at Tirupattur as D. F. O. was at Kulasekharam during our tour to Kanyakumar in March. It was a pleasure to meet him, listen to him and enjoy his hospitality. Yuvaraj continue to be "Mobile" at Coimbatore and was nice enough to accompany our cricket team on their jaunt to Valparai.

1952—'54: It was specially pleasant to meet Rajamannar at Warrangal where he had come to meet us, taking time off from a busy schedule of supervision of beedi leaf collection. He is now D. F. O. at Kurnool. He is fondly remembered by all of us. Nanu Nair, who has completed a course of training in wildlife management, is now D. F. O. at Palghat. Soundarapandian, Sankaravadivel and Pethannasamy were kind enough to spend some time with us at Nagercoil in March when all of them were in Rubber divisions. Subbiah was at Pudukkottai as Regional Manager, Tamil Nadu Forest Plantation Corporation when we went there in July. We recall with gratitude the effort and personal interest taken by him to make our Arimalam camp successful. Devarajulu is going strong as D. F. O at Pollachi and takes particularly keen interest in the activities of his "alma mater". Besides giving us the pleasure of his company at the Topslip camp fire, he was the driving force behind the delightful trip of our cricket team to Valparai. Raman is D. F. O., Rubber plantations, Punalur and accompanied us.

1953—'55: Dr. C. Chandrsekharan, I. F. S. is now Director of the newly-formed Kerala Forest Research Institute at Peechi. We understand he stands posted to Bangkok as Regional, Economist F. A. O. He will doubtless acquire new skills there. Gnanavel is in the Tea Plantation corporation. Nilgiris. K. C. Doraiswamy was at Nagercoil (Rubber plantations) as D. F. O. in March and met us. Nallathamby made our stay at Kodaikanal pleasant and successful.

1954—'56: Narayanaswamy met us at Gungal near Hyderabad in May and gave us the benefit of his guidance. Panduranga Rao is now Supervisor, Rajahmundry Sawmills. His competence and enthusiasm were in evidence during the visit to Kadiyam Nursery. His sketches are among those that adorn the walls of our Botany laboratory. E. K. Kurien is D. F. O. in the Punalur rubber plantations and accompanied us on tour. Abraham Varghese is now D. F. O., EVTP scheme at Kothamangalam. K. J. Joseph, I. F. S., Conservator, is now the Managing Director of the Kerala Forest Development Corporation at Kottayam. Aras is Sub-Divisional Forest Officer, Waghai (Dangs)

1955—'57: J. Bhaskaran was D. F. O., Grassland Afforestation at Pamba and spent some of his valuable time with us. M. K. Chandrasekhara Iyer, Principal of the Kerala Forest School at Walayar gave us the benefit of his help during the recent survey practical tour. Ibrahim Kutty, Wildlife Preservation Officer at Thekkady, did much to make our camp at Thekkady a success. It was indeed kind of him. Chinnamani continues at Ooty as Soil Conservation officer. Rajappan Chettiar got promoted recently.

1956—'58: Kuttaya continues to make his presence felt in the college. Narvekar met us at Dandeli Paper Mills. P. T. Joseph, K. Pitchapillai, K. G. George, Babuji George and M K. Divakaran Nair got promoteu recently. C. K. Karunakaran is in the I. F. S. Ramalingam coutinues at Andaman Timber Depot, Madras and handled the classes there with his usual competence. Ghatge is sub - D. F. O., Alibagh.

1957—'59: Kulkarni is with us and earned laurels recently in badminton. It was a pleasure to meet K. P. Munuswamy at Maredumilli and Hyberabad. He took special interest as Geneticist in showing the classes his work. Santokh Singh at Hyderabad showed dynamic ability inmaking our stay at Hyderabad interesting and educative. P. S. Reddy was kind enough to personally accompany us on our visit to the Nehru Zoological Park at Hyderabad. Mangalraj Johnson is in Resources Survey, Madurai and takes keen and specialised interest in wildlife. Tripathi is Asst. Silviculturist at Baroda. Datar is Technical Asst. to C. F. at Poona. Tatuskar is A. C. F. at Poona. G. V. Joshi is Instructor, F. G. T. S.

at Shahapur. Mankame is Asst. Siva, Wada. Nigrekar is sub D. F. O. at Roha Urankar is ACF, FDCS P. Joshi is ACF attached to Silva at Poona. Sirsikar is ACF at Nanded.

1958 – '60 : T. J. Chandrasekharan Nair continues at Walayar and was of great help during the recent survey camp. He is engaged in compiling a flora in Malayalam for commonly used timbers that includes references from the Vedas and similar antique texts, giving different uses, for publication by the Languages Institute of Kerala. Rajamanickam and Sivasamy have been recently promoted. The latter met us at the Madurai Lac Factory in March. Packiam has also been recently promoted. Vijayraghavan was D. F O. Punalur rubber plantations in March and took us out on our excursions We remember his kindness, hospitality and the arrangements he made to make our visit a success. Salunke is Technical Asst to C. C. F. at Baroda. Balakathiresan was A. C. F. at Sathyamangalam in January and gave as much pleasure by accompanying us and handling the classes. He impressed us with his wide interests-birds to roads!

1959—'61 : We are happy to hear from Joseph K. Kurien who was a distinguished student of this batch. He tells us that in October last he was Depot officer, Govt. Timber Depot, Parampuza, Kottayam. He has been the President of the Kerala Forest Rangers' Association from 1968. It is a service organisation with no political commitments. M. V. Kuruvilla is at Sungam in the Anamalais. He met the students of the S. F. S. course at Parambikulam. John Thomas was in the unelectrified wilderness of Arienkavu during our long stay there in March and was a model of courtesy, efficiency and hospitality. Balakrishnan and Krishna Pillai, now promoted, were in the Kanyakumari Rubber Plantations in March and met us there. Thyagarajan, ''mobile'' here until recently, is also now promoted. Sivaraman was kind enough to meet us at Kodaikanal. Ashwat Narayan is Wildlife R. O. at Dandeli.

1960—'62 : Gowarikar met us at Borivilli in March. C. K. Antony is R. O. Nilambur. Paul is at Olavakkot and visited our survey camp to see that all was well. Ganapathy continues in Project Tiger. It was pleasant meeting him at Bandipur. Kushalappa continues to be Silva at Bangalare and took much personal interest in making our visits there useful and pleasant. Radhakrishnan is said to be at Mettupalayam. Zachariah is in the college with

us and is his usual self. Chandran and Balasubramaniam are in the Tea Plantation Corporation. We hear Nagarajan is at Bolampatti, but wonder whether this could be true. During our week-long stay at Sadivayal we scoured the forests high and low (from the plains to the summit of Kunjaramalai) but found no sign of the Range officer in any of the several forest types. Possibly we are behind the times in this computer age when remote control is the order of the day. Unusually reliable sources reveal that he has lately been sighted in urban habitats, oozing out of an automobile (one of his?) in uneasy instalments.

1961—' 63 : Upendra Rao had made very satisfactoy arrangements for our camp at Narsipatnam in May. Mohamed was at Karulai in January. Govindan kutty is D. F. O. at Konni. Sadasivam is Wild Life R. O. a Parambikulam. C M. Varghese is in the Hindustan Paper Corporation T. K Raghavan Nair is D. F. O., Achenkoil plantations. Ekambaram was at Pollachi Depot in January. Viswanathan stays on in Thanjavur district, now as R. O. Sirkali. It was pleasant meeting him in the canal bank plantations where he took the classes round with competence and hospitality. S. P. Bhatia is R F. O. Chichinagarnantha.

1964 —'66 : Joseph Jogindranath was at Cumbum in March and was kind enough to conduct the classes in the field. Like many others he found it difficult to believe that in this International Women's year and era of woman's lib, even we have thrown open the doors to women and have a girl scholar from Fiji ! A. H. Quraishi at Gungal accompanied us and was kind enough to give the classes some much needed refreshment at Ibrahimpatnam.

1965-'67: E. Harry was at Walayar last November and met some of us on an excursion. Abraham is going strong with us. Achutanand is in working plans at Palghat and met some of us in the recent Walayar survey camp. Pothen Jacob, in Salvage Felling division, Munnar, is gratefully remembered for the help he rendered to a sick student at Thekkady in March. Muralidharan Nair was in Punalar rubber plantations in March. Y. G. Siddharta was R. O. Bamboo plantations, Narsipatnam in May and was kind enough to accompany us and alk to the classes. V. C. Pandya is at Dang in Publicity and Liaison.

1966-'68: G. K. Singh is in East Benhr range. T. M. Matthew is in Palghat W. P. Dn. C. T. Sivasankaran Nair, I. F. S. is D. F. O., Trichur.

1967-'69: Arvindakshan continues at Mudumalai and it was a pleasure to revive his acquaintance. K. J. Philip is in Research range Peermade while Abdul Razack is at K. F. S., Walayar where he met our Survey camp classes Chakrapani was in the TNFP corporation at Arimalam in July and put in efforts to make our camp there a success.

1968-'70: Agaseveeran and Deepalingam were in the Kodaikanal wattle plantations in March and it was pleasant meeting them. John Satyasekharan explained lac management at Cumbum. Abubucker whom we met at Trichy and Pudukkottai in July is of late seen often in our campus; presumably he is posted here. Rajasekharan Nair is in Parambikulam Teak plantations and met us at Topslip in January. Kunjalan is a special range at Kakkayam. Sasidharan in the K. F. S. was of considerable help to us during the recent Walayar Survey camp. It was a pleasure to meet Noor Ahmed, ex-tennis champion at Paderu and Minumulluru where he is the Asst. E. M. Taquiuddin came here with the S.F.S course and must be a full-fledged A. C. F. now. Gaonkar continues at Karwar and it was pleasant meeting him in January there. "Chessmaster" Kamble is at. Allapalli in the logging unit.

1969-'71: K. K. Sharma, we hear, has finally got married. Ramachandran is at Kanha. What news of Chacko and Dubey? Pandian was at Boothapandi in Kanyakumari district in March. He accompanied us to Kovalam and talked enthusiastically about his work. Diwakar, we hear, is interested in teaching. He would be a success as one. Rakhe is at Tarubanda Melghat.

1970-'72: It was a great pleasure hearing from Kalia in May. He is still in the Jabalpur State F. R. I. with Shivraj Singh, R. K. Sharma, Dixit and Bhattacharya and feels that staying on there is not doing his field work any good. All of them and many of their colleagues have warm and affectionate memories of S. F. R. C. and their happy days here and wish to revive personal acquaintance. Naturally they are outraged at the lamentably aberrant behaviour of a few of their grand-juniors last Convocation Day. Singaravelu handled the juunior class

at the Sethumadai eucalyptus plantations (he was R. O. there in January) with competence. He has acquired assurance and poise since leaving S. F. R. C. and it was a pleasure meeting him. Ramu has descended from Pykara to Perianaicken-palayam without any change in his efficiency, courtesy and regard for the college. At Pykara he met us and told us about the nursery and rosegum plantations; and in his new station he is always only too glad te be of service to us, be it a fuel coupe survey or organisation of work for wildife day. Raman met us at Madurai in March and was of much help in hiring the P. R. C. bus. Unnikrishnan used to be seen in and around the campus until recently. Chikkaraju continues at Bandipur and it was a pleasure meeting him again. It was a pleasant surprise to see Gaikward here on Sports Day. He had come here with an agriculturist friend on a personal visit, looking mod but also weak. It was also a pleasant surprise to see Birje here. He was keen on our visiting Melghatand even drew up a blueprint but it proved impracticable.

1971 —'73 : Mani was kind enough to spend quite some time with us in the field at Neyveli and Managethi, explaining the working of the research experiments in his charge. Pasupathiraj also in research and recently married, was with the classes in the field at Kodaikanal. It was a pleasure meeting him and to observe his enthusiasm and regard for the college. Kandasamy, still in rubber called on us at Nagercoil. Subbaraman is presumably still on the staff of the school at Vaigai Dam. It was a pleasure to meet Gopalakrishnan. Balgi and Radhakrishna remember S. F. R. C. with affection. Sivasubramaniam is in Ooty Research and met the class there. A. R. Khan is still at Allapalli and getting on fine. It was a pleasant surprise to hear from D. A. Joshi and to know that he is now an Asst. Instructor (after having been so recently the taught) in the Forest Guard's Training school at Pal in Jalgaon dist. He sees S. F. R. C. as the best model for the training schedule in his school. He teaches Botany and Survey (so they are not poles apart after all) while colleague Mophare also there, teaches utilization and law. Shejale and many of his other batchmates are deputed to the corporation. S. V. Naik is R. F. O., Ashram school, Mohandas in Kalwan range, Nasik. Jadhav is in Chopla range.

1972 —'74 : From this most recent of batches, Diwakar Bhat and Bidi are at Palnjim, R. N. Naik at Valpoi (W. P. ?), Selot at West Beihar range on special duty, Dave also on special duty at Motinala, Peeran in the Tea Corporation

(will wonders never cease?) and V. N. Deshpande at Nagpur. Udayakumar is in a territorial range at Dandeli. The compiler of this column missed him sorely this year. Mahimkar, also badly missed in our cricket team, is at Allapalli. His devotion to cricket continues and one would not be surprised if he succeeded in teaching this noble game to the tribals. Rabari is at Vasana and it was pleasant hearing from him. Ratnakar Shetty is at Anketa. It was kind of Tongo to remember us from Melghat (Tarubanda to be precise) and write to us. Joy when last heard of was in a Banglore hospital for surgery. We hope he is fully recovered now. Somasundaram and Balachandra Nair are under training at Palghat and Arienkavu respectively and we have had stary glimpses of them. Karthikeyan Pillai is W. P. R. O. at Trivandrum. Radhakrishnan Nair is at Perumbavur in H. P. C. V. M. Muthuswamy gave us a pleasant surprise meeting us at Nagercoil as did Manickam.

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OBITUARY

Dr. D. A. RAMA RAO.
B. Sc., A. I, I. Sc., M. F. (Wash), Ph. D.

We deeply regret to announce the death of Dr. D. A. Rama Rao, one of the eminent and veteran Forest Officers of Karnataka. After his graduation and Associateship of Indian Institute of Science, he joined as probationary Range Forest Officer on the 16th August 1928 at Bangalore and attended Khedda duties during 1929-30. He was on deputation to U. S. A. for higher training in forestry from September 1931 to November 1933 and obtained his Masters and Doctorate from Washington. On return he was promoted as Sub-Assistant Conservator of Forest and posted to Shimoga Circle to work in N. R. Pura, Sacrebyle, Shikaripur and Bhadravati. In 1940 he was promoted as Assistant Conservator of Forest and worked as Technical Assistant to Chief Conservator of Forest. He became the General Manager of Match Factory, Shimoga in 1941. He became Divisional Forest Officer in 1947 and worked in Tumkur, Sagar, Shimoga and Bhadravati Divisions. In 1949 he became Divisional Forest Officer, Working plans and principal Rangers School at Banglore. He was promoted as Conservator of Forest in 1951 and served in Shimoga Circle, during which time he attended IV World Forestry Congress at Dehra Dun (1954) as a delegate.

He was reverted as Sr. Asst. Conservator of Forests in 1955 and retired from service on 30th Sept., 1958. A good field worker and an intelligent officer loved by all. His death is a great loss to all the Foresters.

Rama Rao was Principal, S. F. R. C. from 10-12-1955 to 30-6-1959.

May his soul rest in etrnal peace.

K. A. K.

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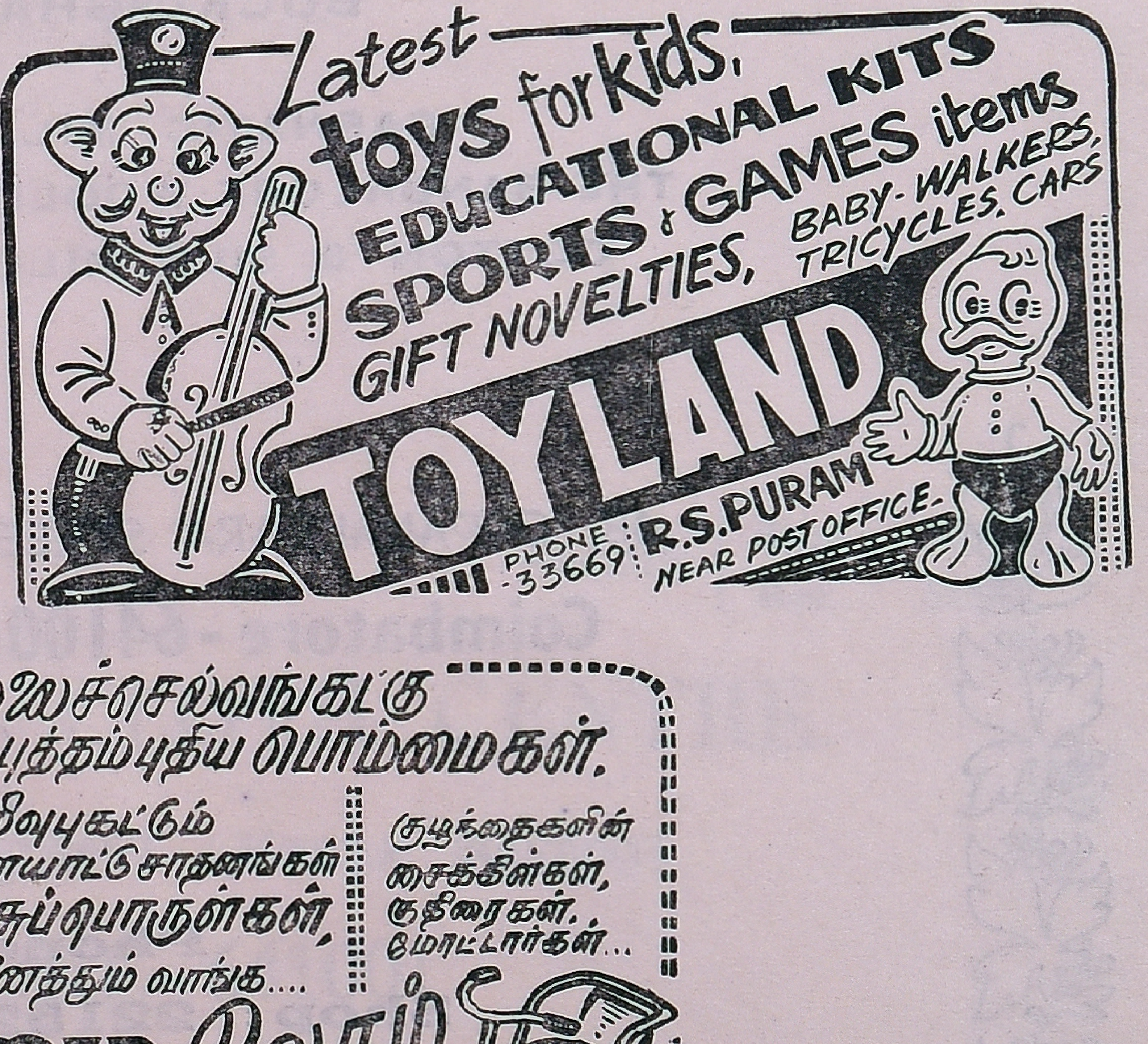

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The mechanical method converts about 95% of the dry weight of wood into paper. The paper is opaque, but is relatively weak and discolours easily on exposure. Newsprint is made from 85% mechanical pulp and 15% chemical pulp.

Chemical pulping : The two chief methods of chemical pulping are

i) Sulphate process. Better known as Kraft process.

ii) Sulphite process.

Kraft process of pulping is now more widely followed than the *Sulphite process*. The methods aim at same objective i. e. the lignin in the wood is degraded and dissolved by various reagents leaving the cellulose aud hemicellulose in the form of fibres. Some degradation of cellulose and hemicellulose also does take place.

In both the processes, the logs to be pulped are debarked and chipped in a chipper to reduce them to optimum size i. e. 3/8″ to 1″ in length, 5/8″ to 7/8″ in width and 1/16″ to 3/16″ in thickness. The reagents used in cooking the chips are different for different processes.

Chemical Pulping by kraft process

In the digestor sodium hydroxide ($NaOH$) and sodium sulphide (Na_2S) in the ratio of 2 : 1 cook the materials at 170° C. At high pressure (7-8 atms.) cooking takes place for an hour or two and the mixture is maintained at the temperature for another one or two hours. The lignin is dissolved out but the pulp is still in the form of chips.

In the blow tank, the chips separate into fibres due to the sudden release of pressure.

The pulp (fibreised) is passed into a separator where the steam escapes and the pulp collects.

In the washer the pulp is washed with water. The tanks have perforated false bottoms which retain the fibre but allow the liquid to drain off.

This liquid is called black liquour. It is treated to recover the chemicals i. e. alkali and sodium sulphite. This is recycled back into the digestor. However there is always some loss of materials.

The pulp is to be bleached if used as writing paper.

Sulphite Process: In this process free sulphur dioxide, calcium bisulphite and water cook the chips at 5-6 atms. pressure for 3-4 hrs. Chemicals are seldom recovered.

The wood pulp now is to be bleached.

Bleaching of the wood pulp : Crude pulp is now screened and incompletedly cooked fibres are separated from cooked fibres. This is done by diluting the stock greatly and running it through perforated slotted plates This device holds back uncooked fibres but allows cooked fibres to pass through.

The fibres are then bleached. Bleaching can be done by calcium hypochlorite or sodium hypochlorite or with chlorine and hypochlorite followed by treatment with warm dilute caustic soda and a thorough washing. Hydrogen peroxide, sodium peroxide, hydrosulphite or chlorine dioxides can be used for better bleaching.

The bleached fibres are now beaten in a Hollander beater for fibrillation and hydration (fibres are separated, shortened and bruised). This helps in making the fibres cling together when they are formed into a sheet.

In the Hollander beater varieties of fillers are added to the fibres to give the paper certain desired properties .